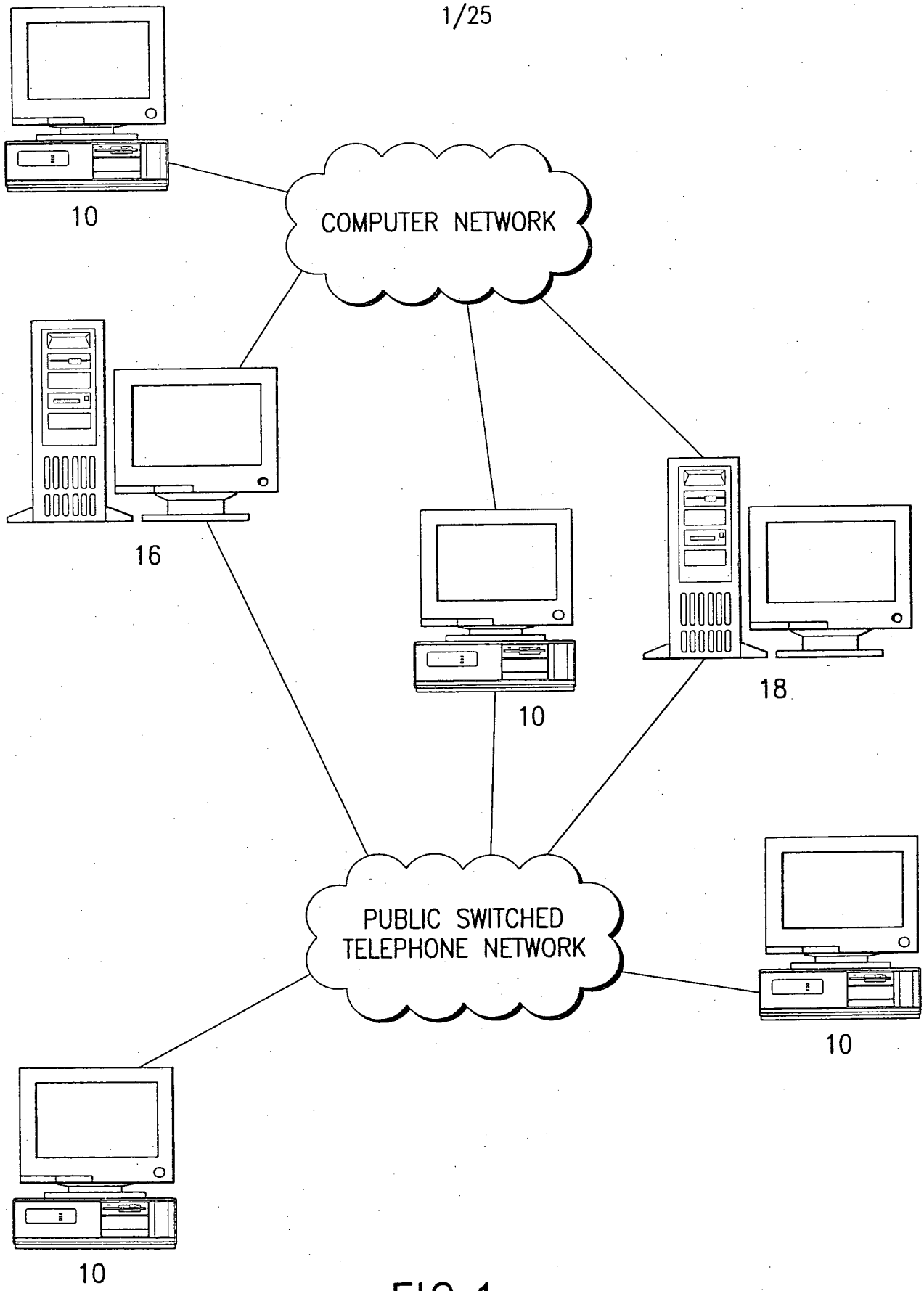
10
COMPUTER NETWORK
16
10
18
PUBLIC SWITCHED
TELEPHONE NETWORK
10
10

FIG.1

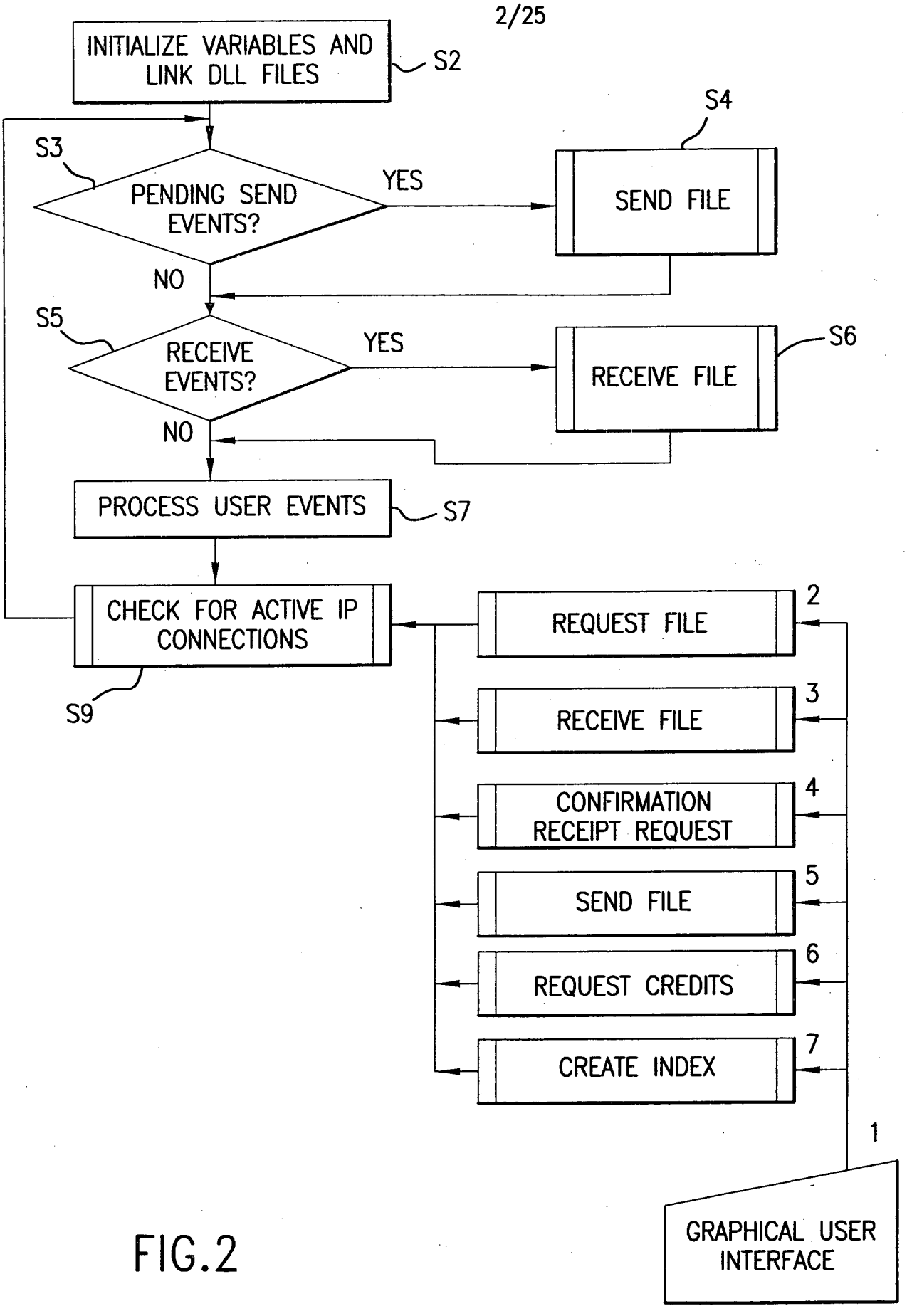
INITIALIZE VARIABLES AND LINK DLL FILES
S2
S3
PENDING SEND EVENTS?
YES
S4
SEND FILE
NO
S5
RECEIVE EVENTS?
YES
S6
RECEIVE FILE
NO
PROCESS USER EVENTS
S7
CHECK FOR ACTIVE IP CONNECTIONS
S9
REQUEST FILE
2
RECEIVE FILE
3
CONFIRMATION RECEIPT REQUEST
4
SEND FILE
5
REQUEST CREDITS
6
CREATE INDEX
7
1
GRAPHICAL USER INTERFACE

FIG.2

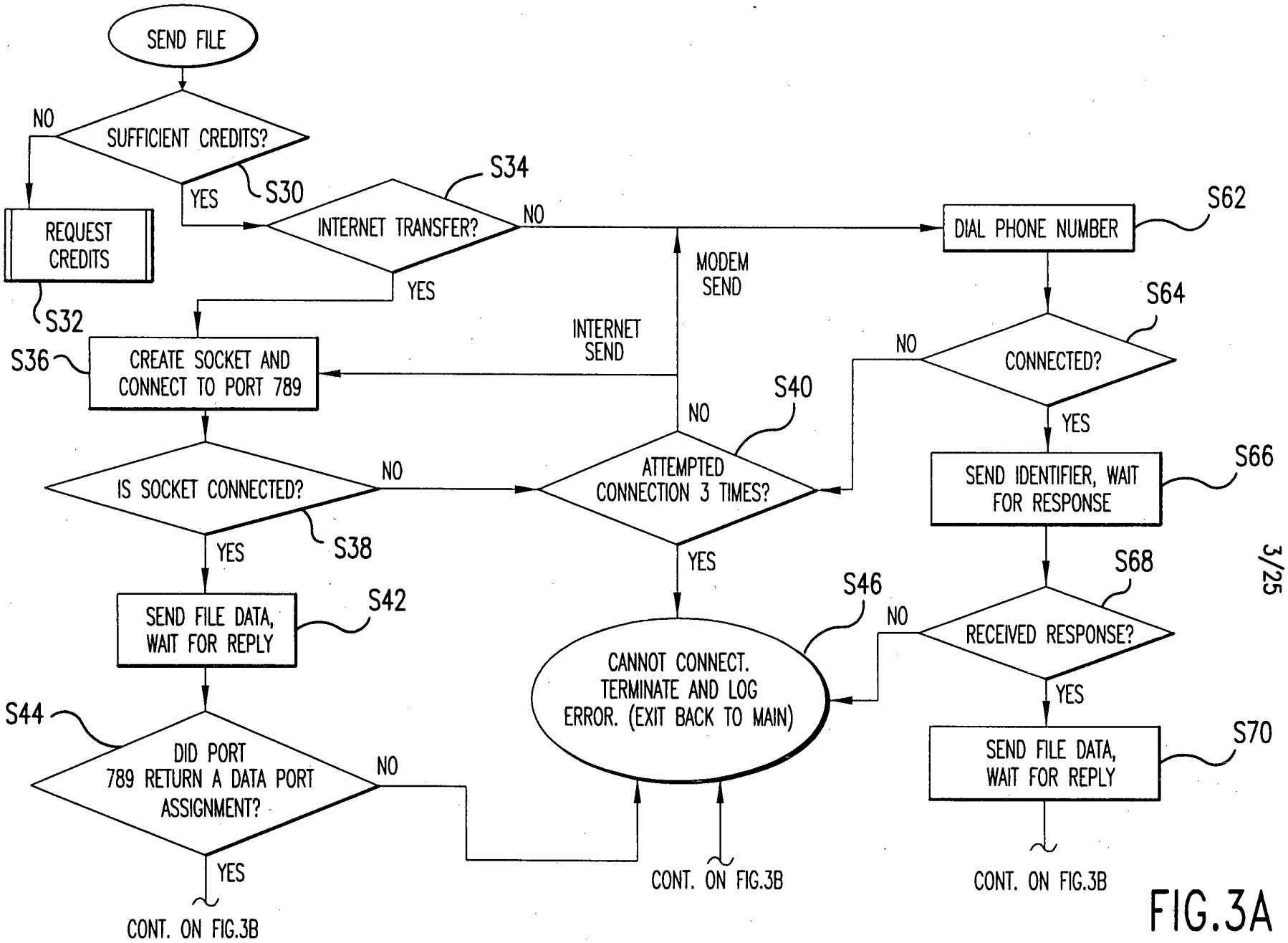
SEND FILE
SUFFICIENT CREDITS?
NO
YES
S30
REQUEST CREDITS
S32
S34
INTERNET TRANSFER?
NO
YES
S36
CREATE SOCKET AND CONNECT TO PORT 789
IS SOCKET CONNECTED?
NO
YES
S38
S40
ATTEMPTED CONNECTION 3 TIMES?
NO
YES
INTERNET SEND
MODEM SEND
S42
SEND FILE DATA, WAIT FOR REPLY
S44
DID PORT 789 RETURN A DATA PORT ASSIGNMENT?
NO
YES
CONT. ON FIG.3B
S46
CANNOT CONNECT. TERMINATE AND LOG ERROR. (EXIT BACK TO MAIN)
CONT. ON FIG.3B
S62
DIAL PHONE NUMBER
S64
CONNECTED?
NO
YES
S66
SEND IDENTIFIER, WAIT FOR RESPONSE
S68
RECEIVED RESPONSE?
NO
YES
S70
SEND FILE DATA, WAIT FOR REPLY
CONT. ON FIG.3B

FIG.3A

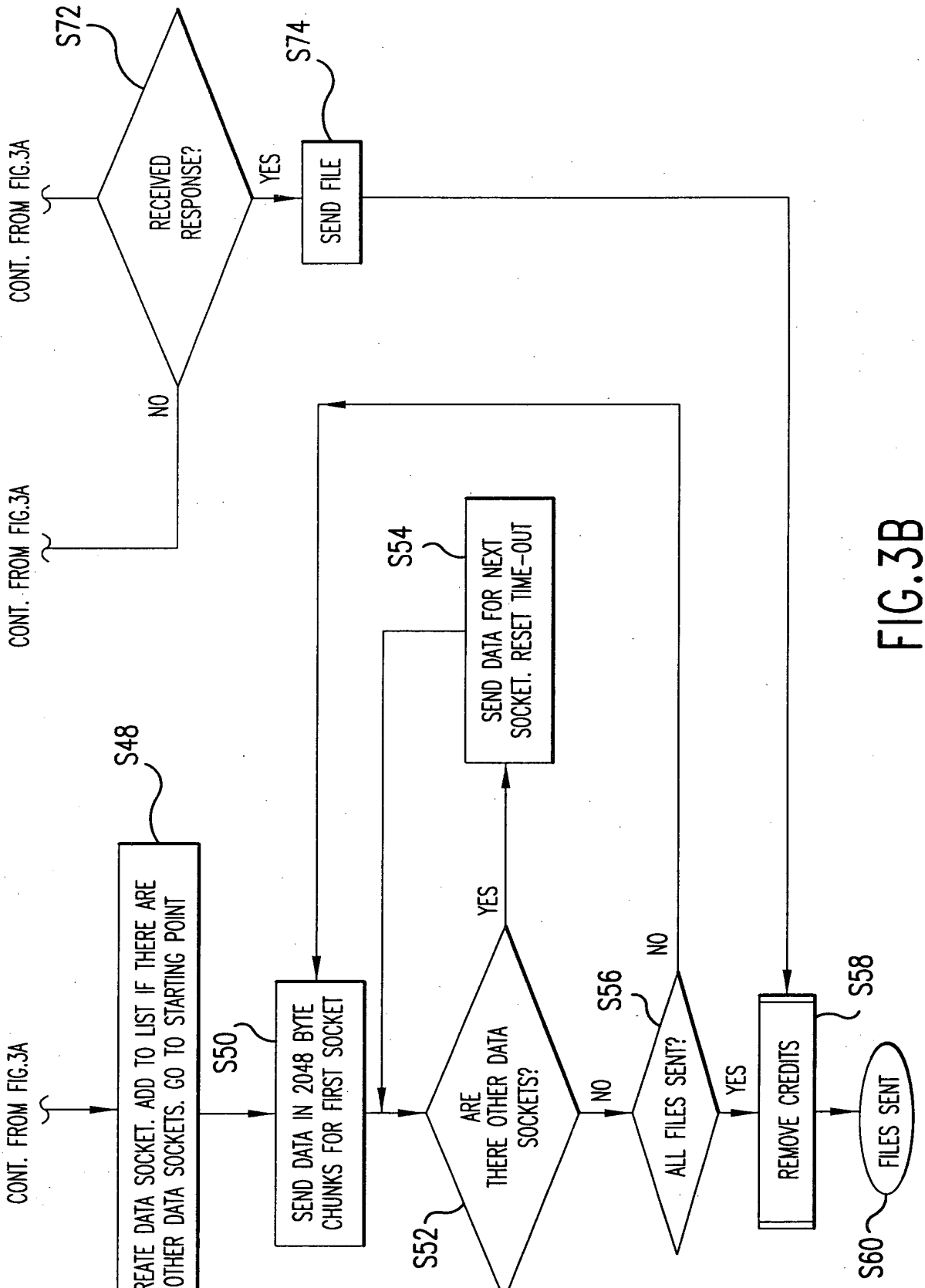
CONT. FROM FIG.3A
CREATE DATA SOCKET. ADD TO LIST IF THERE ARE OTHER DATA SOCKETS. GO TO STARTING POINT
S48
SEND DATA IN 2048 BYTE CHUNKS FOR FIRST SOCKET
S50
ARE THERE OTHER DATA SOCKETS?
S52
YES
SEND DATA FOR NEXT SOCKET. RESET TIME-OUT
S54
NO
ALL FILES SENT?
S56
NO
YES
REMOVE CREDITS
S58
FILES SENT
S60
CONT. FROM FIG.3A
RECEIVED RESPONSE?
S72
NO
YES
SEND FILE
S74
CONT. FROM FIG.3A

FIG.3B

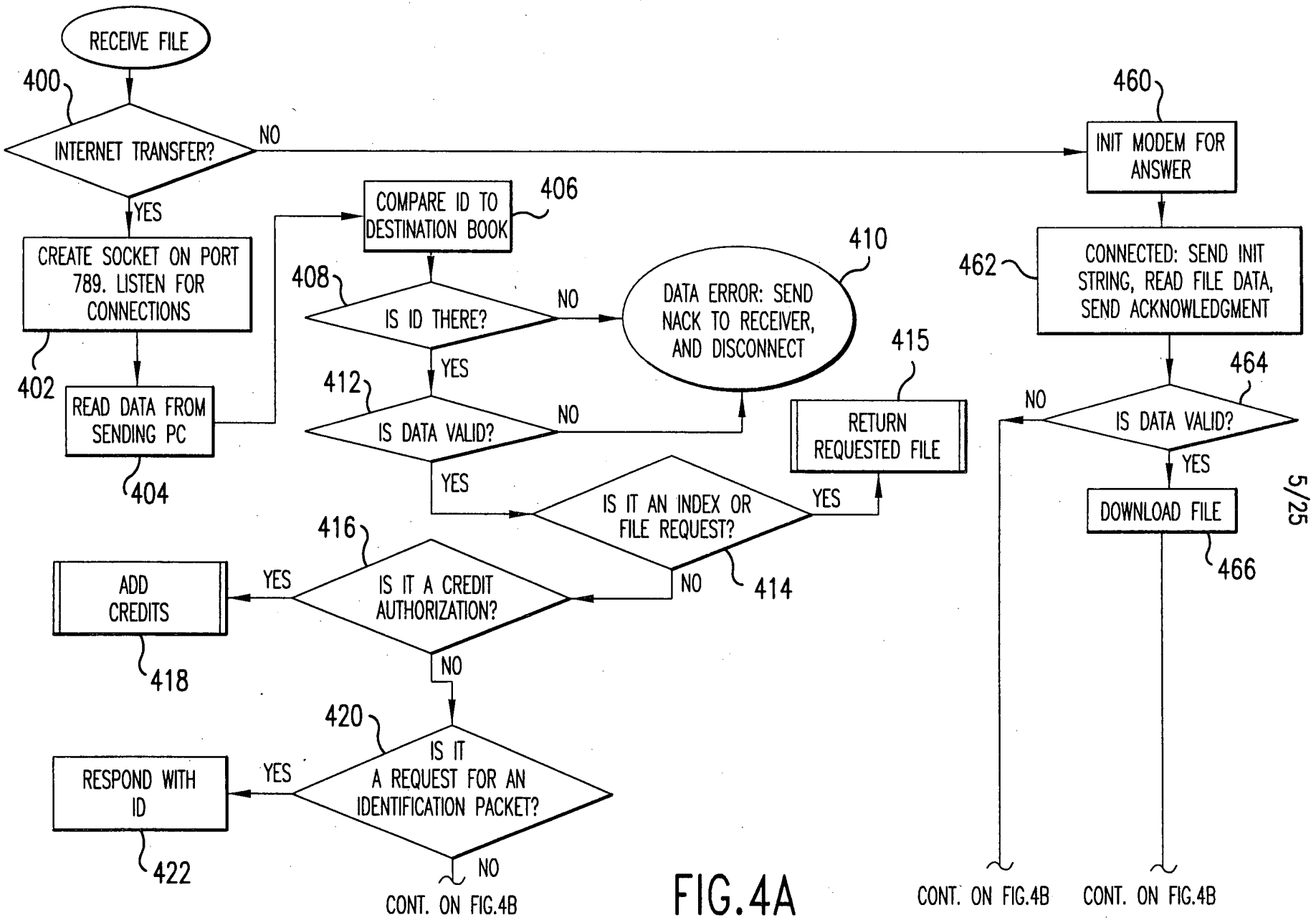
RECEIVE FILE
400
INTERNET TRANSFER?
NO
YES
CREATE SOCKET ON PORT 789. LISTEN FOR CONNECTIONS
402
READ DATA FROM SENDING PC
404
COMPARE ID TO DESTINATION BOOK
406
408
IS ID THERE?
NO
YES
412
IS DATA VALID?
NO
YES
410
DATA ERROR: SEND NACK TO RECEIVER, AND DISCONNECT
415
RETURN REQUESTED FILE
IS IT AN INDEX OR FILE REQUEST?
YES
NO
414
416
IS IT A CREDIT AUTHORIZATION?
YES
NO
ADD CREDITS
418
420
IS IT A REQUEST FOR AN IDENTIFICATION PACKET?
YES
NO
RESPOND WITH ID
422
CONT. ON FIG.4B
460
INIT MODEM FOR ANSWER
462
CONNECTED: SEND INIT STRING, READ FILE DATA, SEND ACKNOWLEDGMENT
464
IS DATA VALID?
NO
YES
DOWNLOAD FILE
466
CONT. ON FIG.4B
CONT. ON FIG.4B

FIG.4A

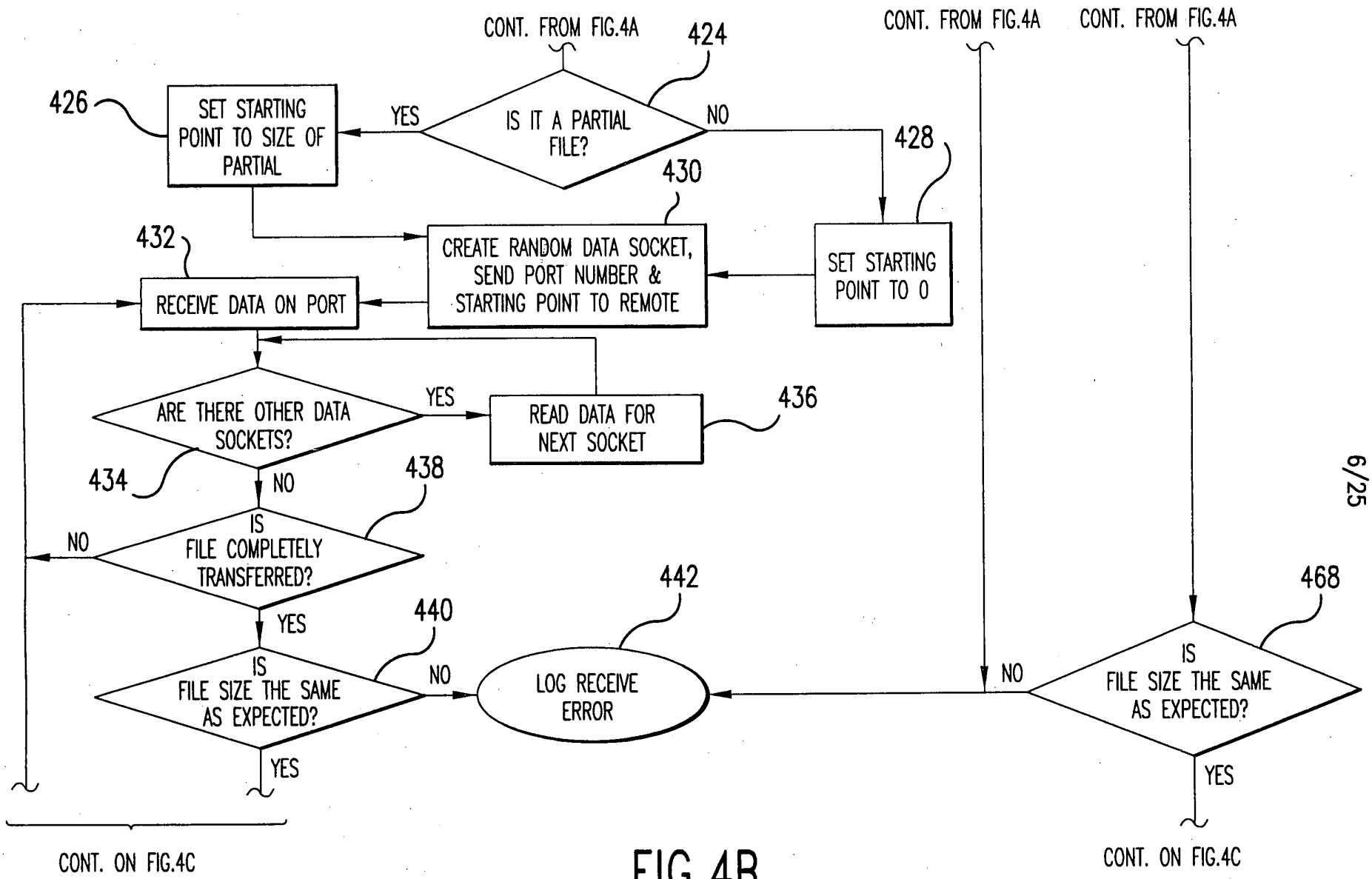
CONT. FROM FIG.4A
424
IS IT A PARTIAL FILE?
YES
NO
426
SET STARTING POINT TO SIZE OF PARTIAL
428
SET STARTING POINT TO 0
430
CREATE RANDOM DATA SOCKET, SEND PORT NUMBER & STARTING POINT TO REMOTE
432
RECEIVE DATA ON PORT
ARE THERE OTHER DATA SOCKETS?
YES
436
READ DATA FOR NEXT SOCKET
434
NO
438
IS FILE COMPLETELY TRANSFERRED?
NO
YES
440
IS FILE SIZE THE SAME AS EXPECTED?
NO
442
LOG RECEIVE ERROR
YES
CONT. ON FIG.4C
CONT. FROM FIG.4A
NO
CONT. FROM FIG.4A
468
IS FILE SIZE THE SAME AS EXPECTED?
YES
CONT. ON FIG.4C

FIG.4B

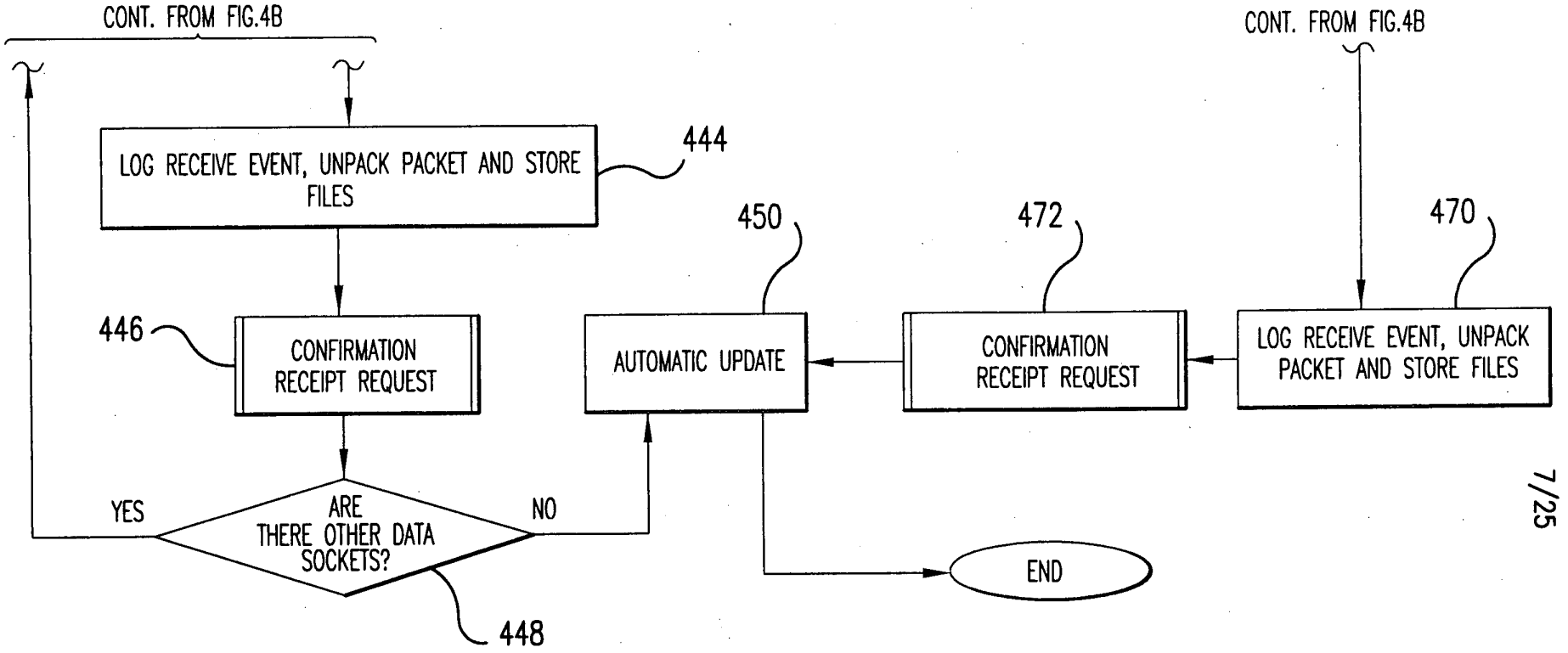
CONT. FROM FIG.4B
LOG RECEIVE EVENT, UNPACK PACKET AND STORE FILES
444
446
CONFIRMATION RECEIPT REQUEST
YES
ARE THERE OTHER DATA SOCKETS?
NO
448
450
AUTOMATIC UPDATE
472
CONFIRMATION RECEIPT REQUEST
CONT. FROM FIG.4B
470
LOG RECEIVE EVENT, UNPACK PACKET AND STORE FILES
END

FIG.4C

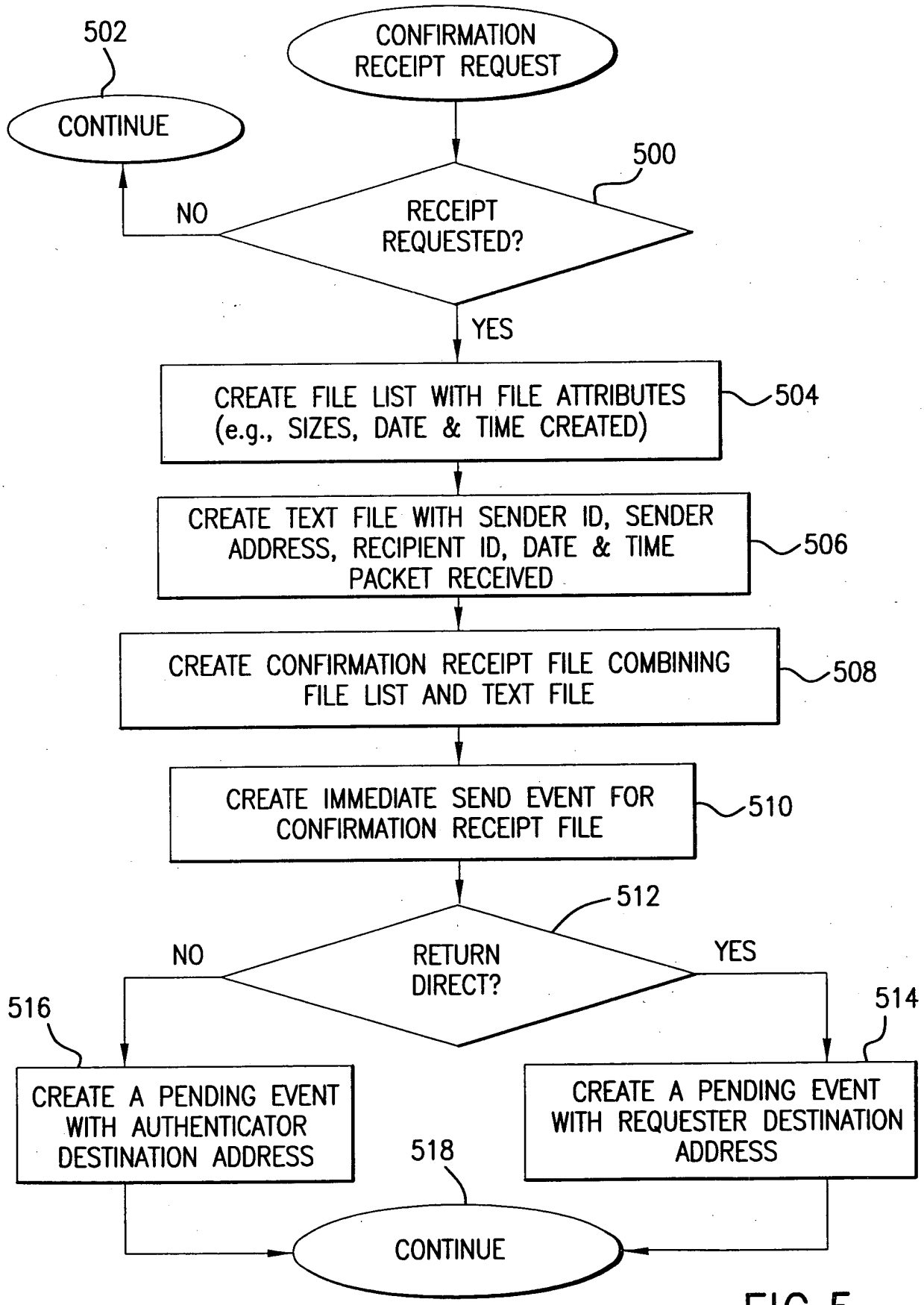
CONFIRMATION RECEIPT REQUEST
502
CONTINUE
500
RECEIPT REQUESTED?
NO
YES
CREATE FILE LIST WITH FILE ATTRIBUTES (e.g., SIZES, DATE & TIME CREATED)
504
CREATE TEXT FILE WITH SENDER ID, SENDER ADDRESS, RECIPIENT ID, DATE & TIME PACKET RECEIVED
506
CREATE CONFIRMATION RECEIPT FILE COMBINING FILE LIST AND TEXT FILE
508
CREATE IMMEDIATE SEND EVENT FOR CONFIRMATION RECEIPT FILE
510
512
RETURN DIRECT?
NO
YES
516
514
CREATE A PENDING EVENT WITH AUTHENTICATOR DESTINATION ADDRESS
CREATE A PENDING EVENT WITH REQUESTER DESTINATION ADDRESS
518
CONTINUE

FIG.5

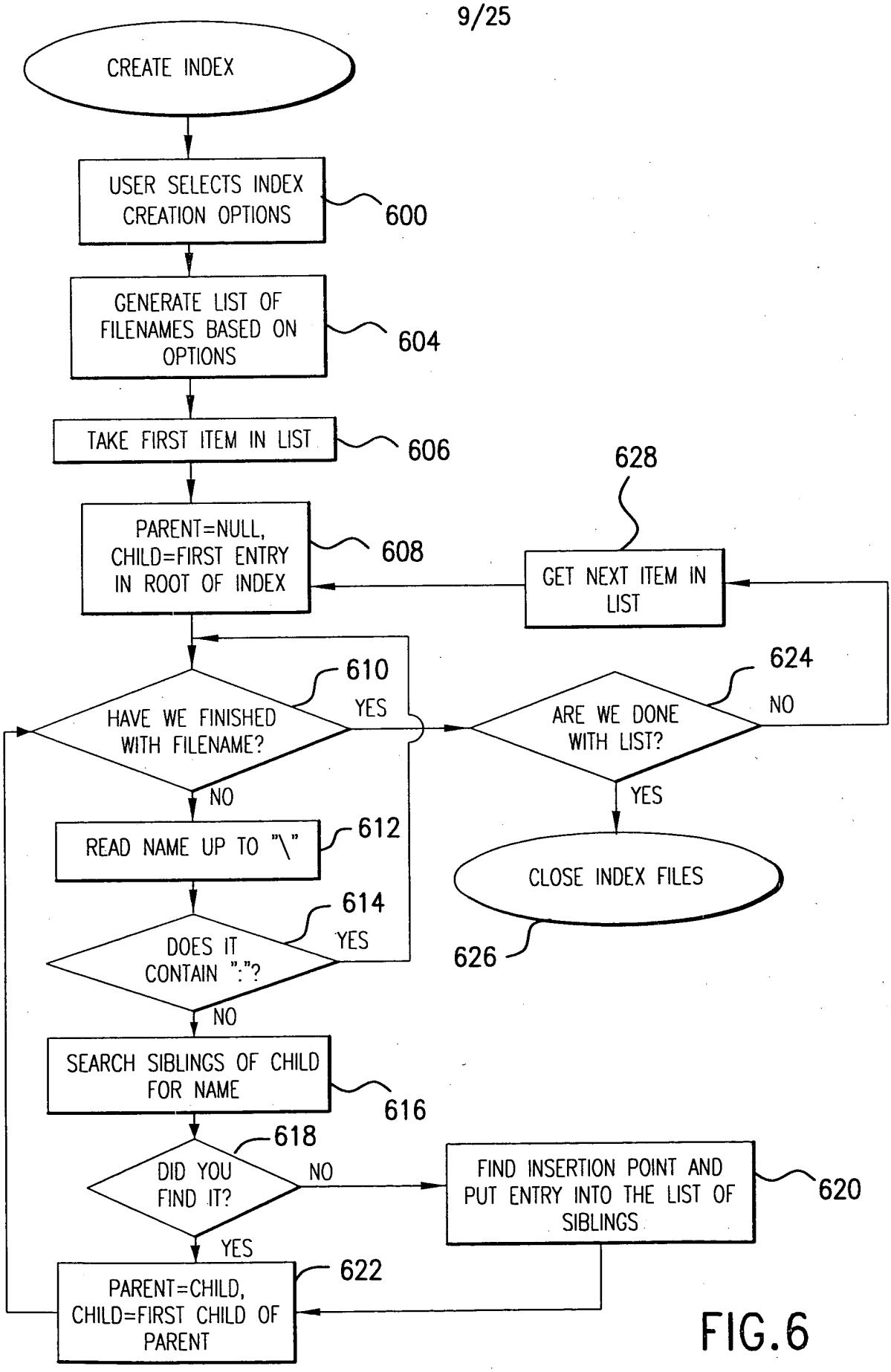
CREATE INDEX
USER SELECTS INDEX CREATION OPTIONS
600
GENERATE LIST OF FILENAMES BASED ON OPTIONS
604
TAKE FIRST ITEM IN LIST
606
PARENT=NULL, CHILD=FIRST ENTRY IN ROOT OF INDEX
608
628
GET NEXT ITEM IN LIST
HAVE WE FINISHED WITH FILENAME?
610
YES
NO
ARE WE DONE WITH LIST?
624
NO
YES
READ NAME UP TO "\"
612
CLOSE INDEX FILES
626
DOES IT CONTAIN ":"?
614
YES
NO
SEARCH SIBLINGS OF CHILD FOR NAME
616
DID YOU FIND IT?
618
NO
FIND INSERTION POINT AND PUT ENTRY INTO THE LIST OF SIBLINGS
620
YES
PARENT=CHILD, CHILD=FIRST CHILD OF PARENT
622

FIG.6

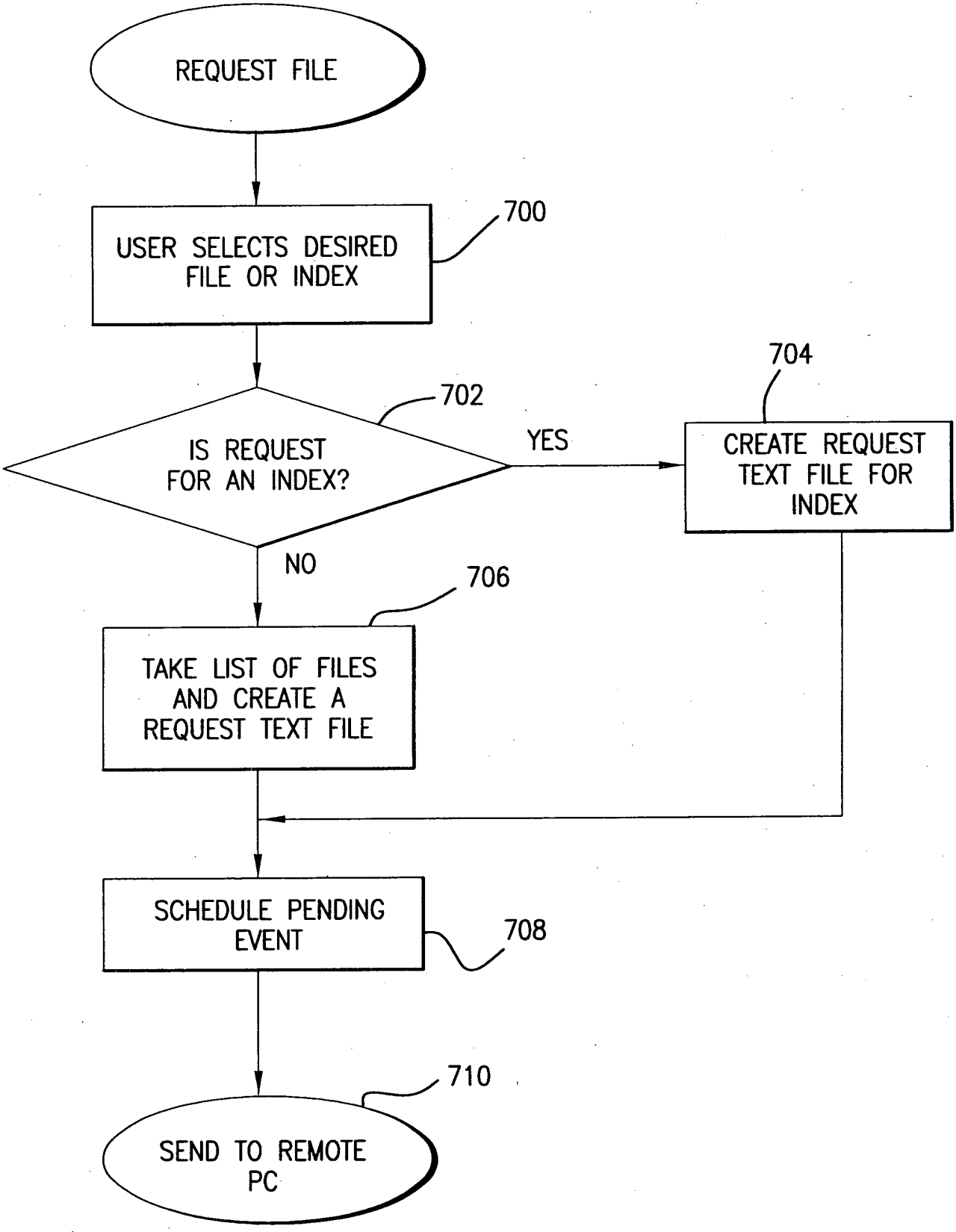
REQUEST FILE
USER SELECTS DESIRED FILE OR INDEX
700
IS REQUEST FOR AN INDEX?
702
YES
704
CREATE REQUEST TEXT FILE FOR INDEX
NO
706
TAKE LIST OF FILES AND CREATE A REQUEST TEXT FILE
SCHEDULE PENDING EVENT
708
710
SEND TO REMOTE PC

FIG.7

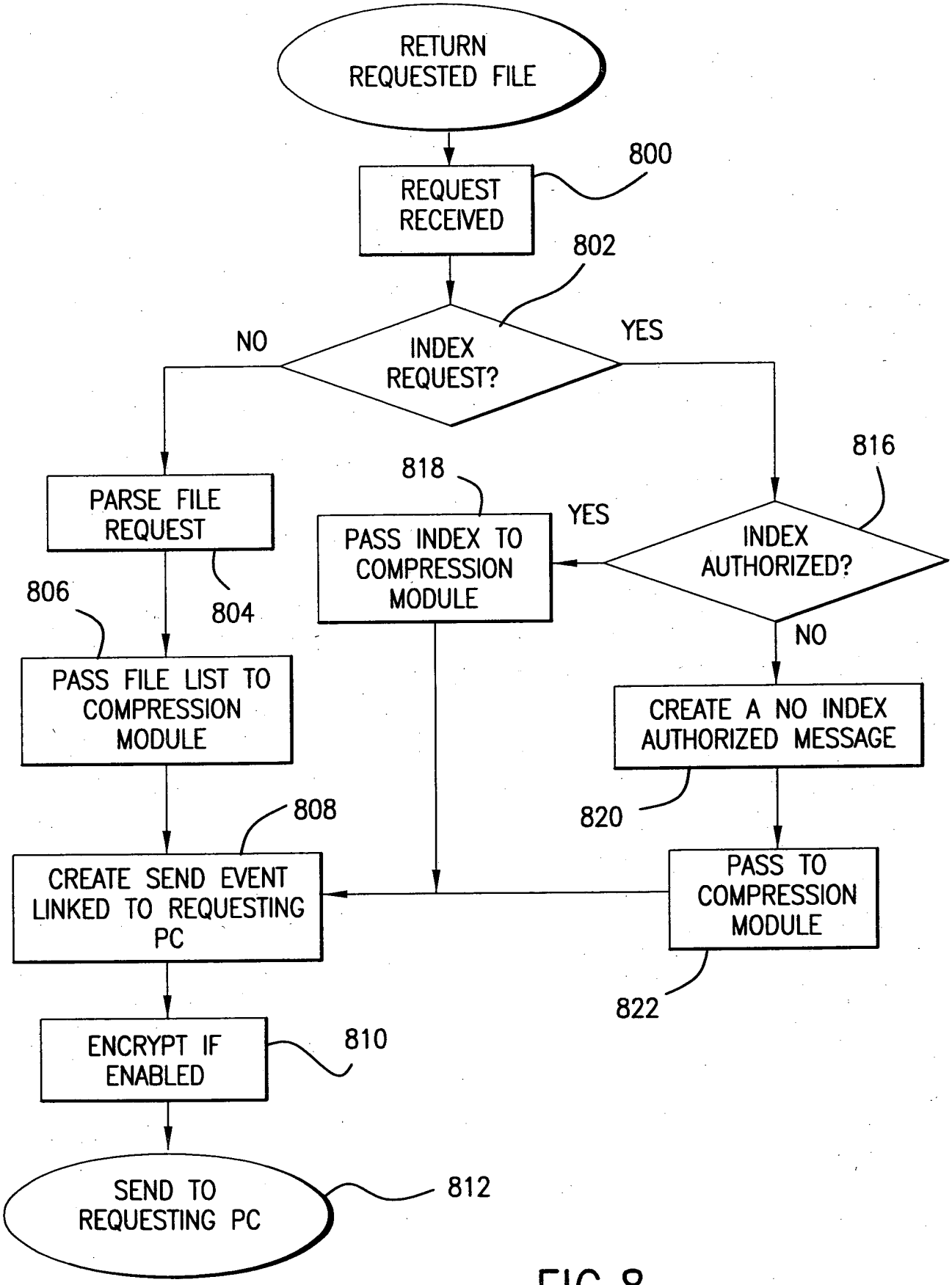
RETURN REQUESTED FILE
REQUEST RECEIVED
800
INDEX REQUEST?
802
NO
YES
PARSE FILE REQUEST
804
806
PASS FILE LIST TO COMPRESSION MODULE
INDEX AUTHORIZED?
816
YES
PASS INDEX TO COMPRESSION MODULE
818
NO
CREATE A NO INDEX AUTHORIZED MESSAGE
820
CREATE SEND EVENT LINKED TO REQUESTING PC
808
PASS TO COMPRESSION MODULE
822
ENCRYPT IF ENABLED
810
SEND TO REQUESTING PC
812

FIG.8

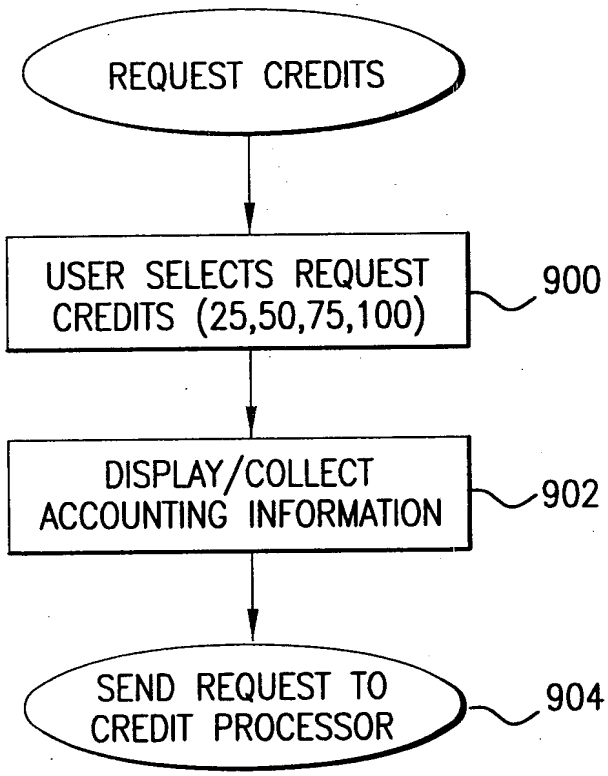
REQUEST CREDITS
USER SELECTS REQUEST CREDITS (25,50,75,100)
900
DISPLAY/COLLECT ACCOUNTING INFORMATION
902
SEND REQUEST TO CREDIT PROCESSOR
904

FIG.9

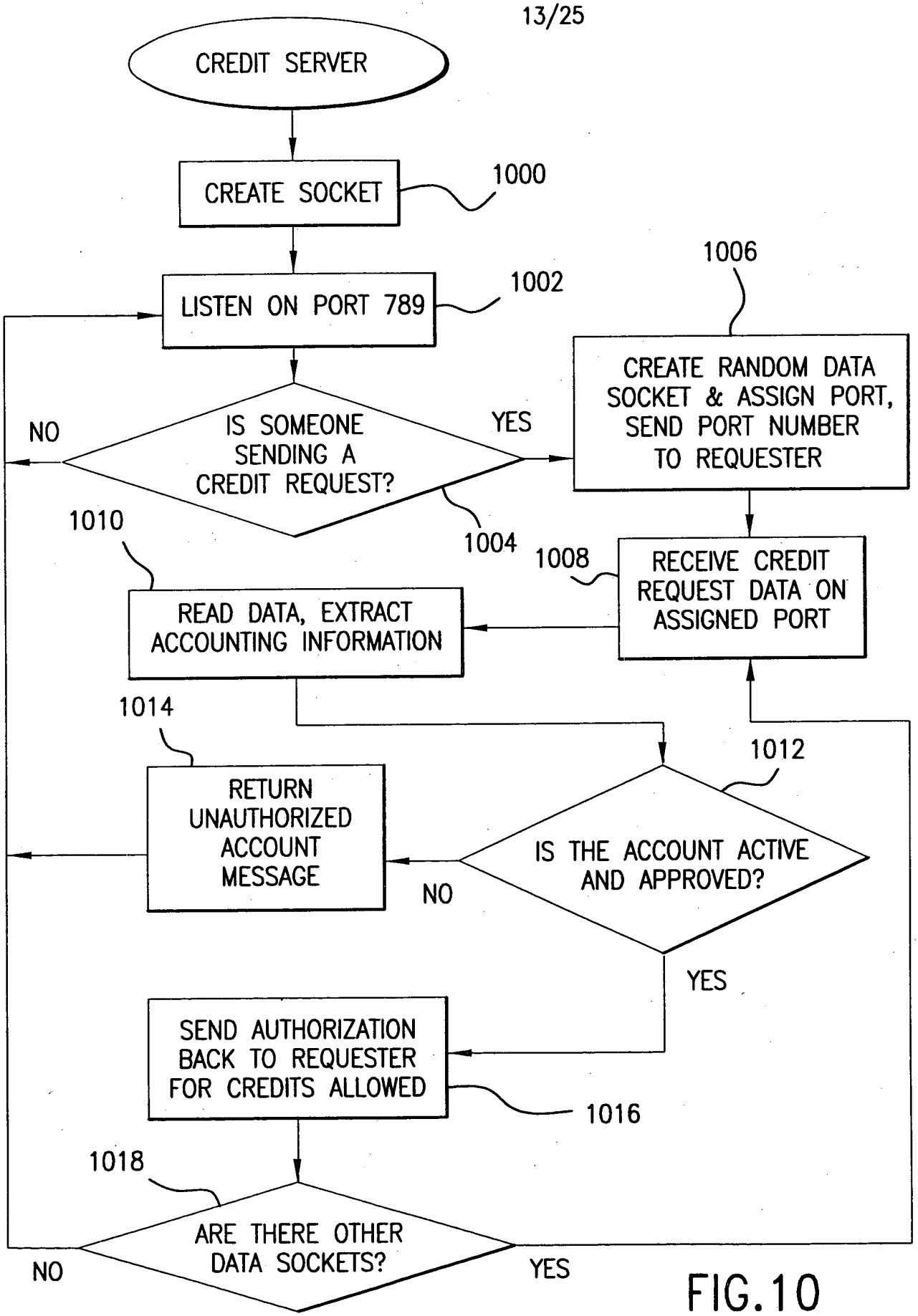
CREDIT SERVER
CREATE SOCKET
1000
LISTEN ON PORT 789
1002
1006
CREATE RANDOM DATA SOCKET & ASSIGN PORT, SEND PORT NUMBER TO REQUESTER
NO
IS SOMEONE SENDING A CREDIT REQUEST?
YES
1004
1010
1008
RECEIVE CREDIT REQUEST DATA ON ASSIGNED PORT
READ DATA, EXTRACT ACCOUNTING INFORMATION
1014
1012
RETURN UNAUTHORIZED ACCOUNT MESSAGE
IS THE ACCOUNT ACTIVE AND APPROVED?
NO
YES
SEND AUTHORIZATION BACK TO REQUESTER FOR CREDITS ALLOWED
1016
1018
ARE THERE OTHER DATA SOCKETS?
NO
YES

FIG.10

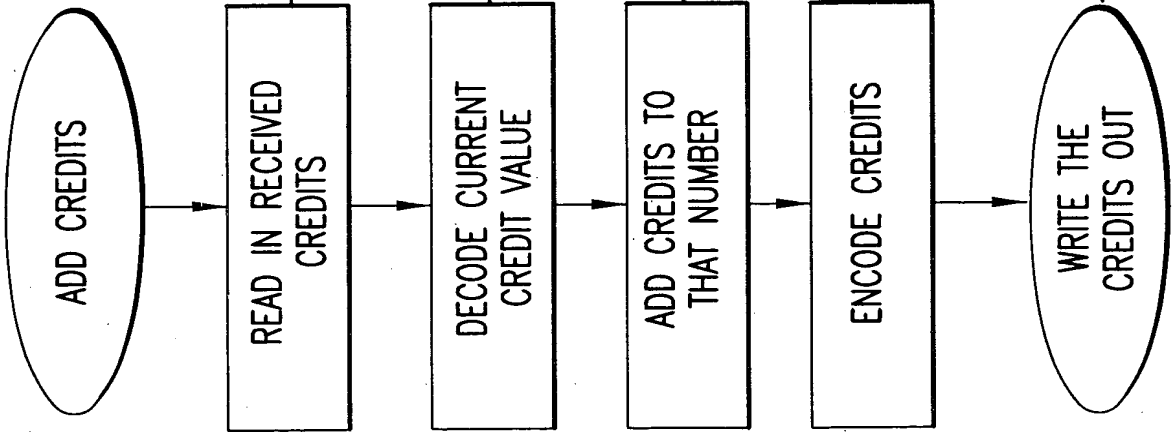
ADD CREDITS
READ IN RECEIVED CREDITS
1100
DECODE CURRENT CREDIT VALUE
1102
ADD CREDITS TO THAT NUMBER
1104
ENCODE CREDITS
1106
WRITE THE CREDITS OUT
1108

FIG.11

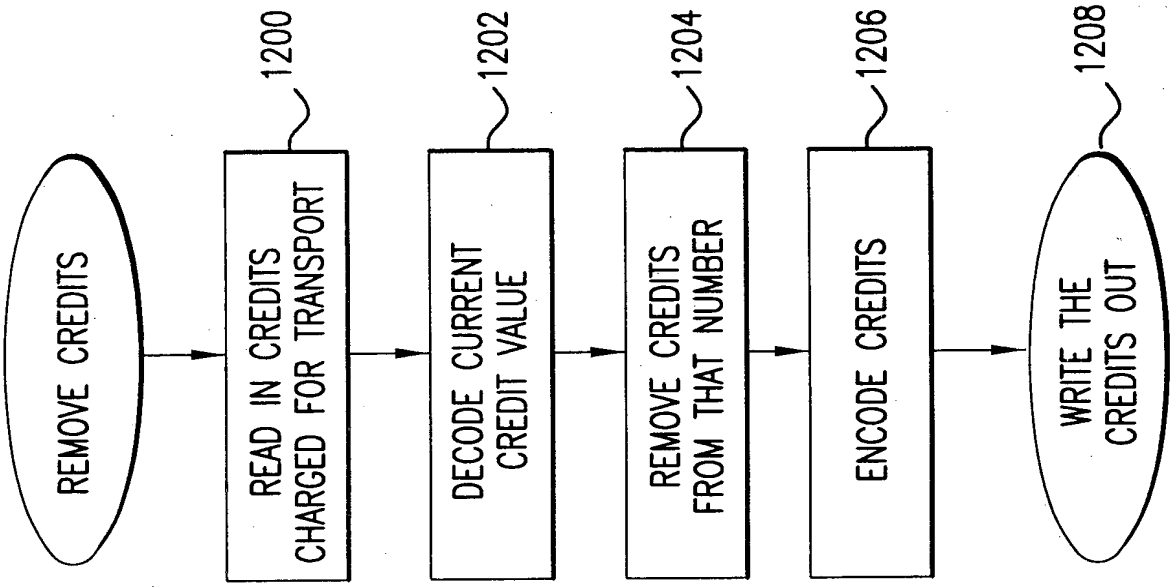
REMOVE CREDITS
READ IN CREDITS CHARGED FOR TRANSPORT
1200
DECODE CURRENT CREDIT VALUE
1202
REMOVE CREDITS FROM THAT NUMBER
1204
ENCODE CREDITS
1206
WRITE THE CREDITS OUT
1208

FIG.12

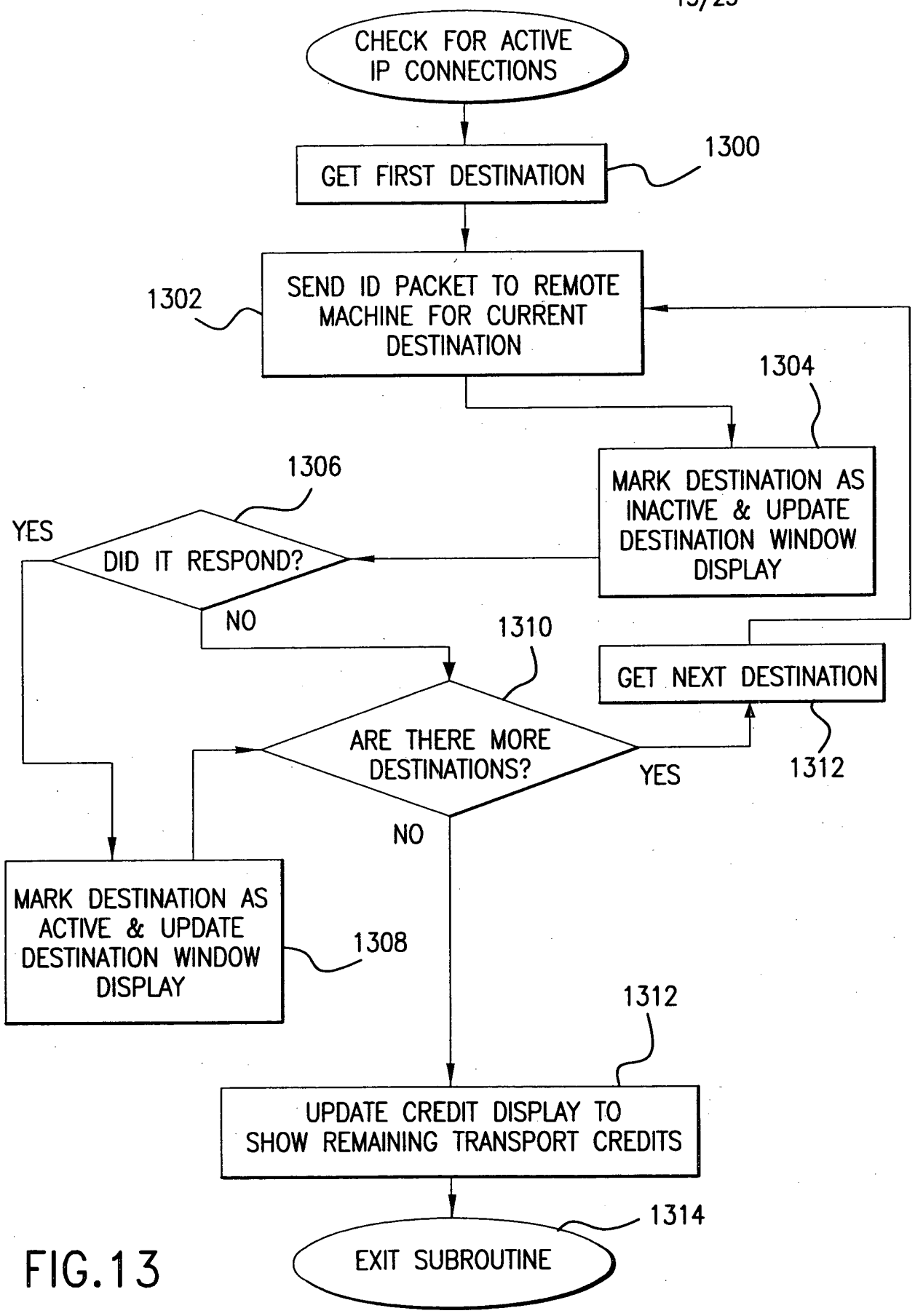
CHECK FOR ACTIVE IP CONNECTIONS
GET FIRST DESTINATION
1300
SEND ID PACKET TO REMOTE MACHINE FOR CURRENT DESTINATION
1302
1304
MARK DESTINATION AS INACTIVE & UPDATE DESTINATION WINDOW DISPLAY
1306
YES
DID IT RESPOND?
NO
1310
GET NEXT DESTINATION
ARE THERE MORE DESTINATIONS?
YES
1312
NO
MARK DESTINATION AS ACTIVE & UPDATE DESTINATION WINDOW DISPLAY
1308
1312
UPDATE CREDIT DISPLAY TO SHOW REMAINING TRANSPORT CREDITS
1314
EXIT SUBROUTINE

FIG.13

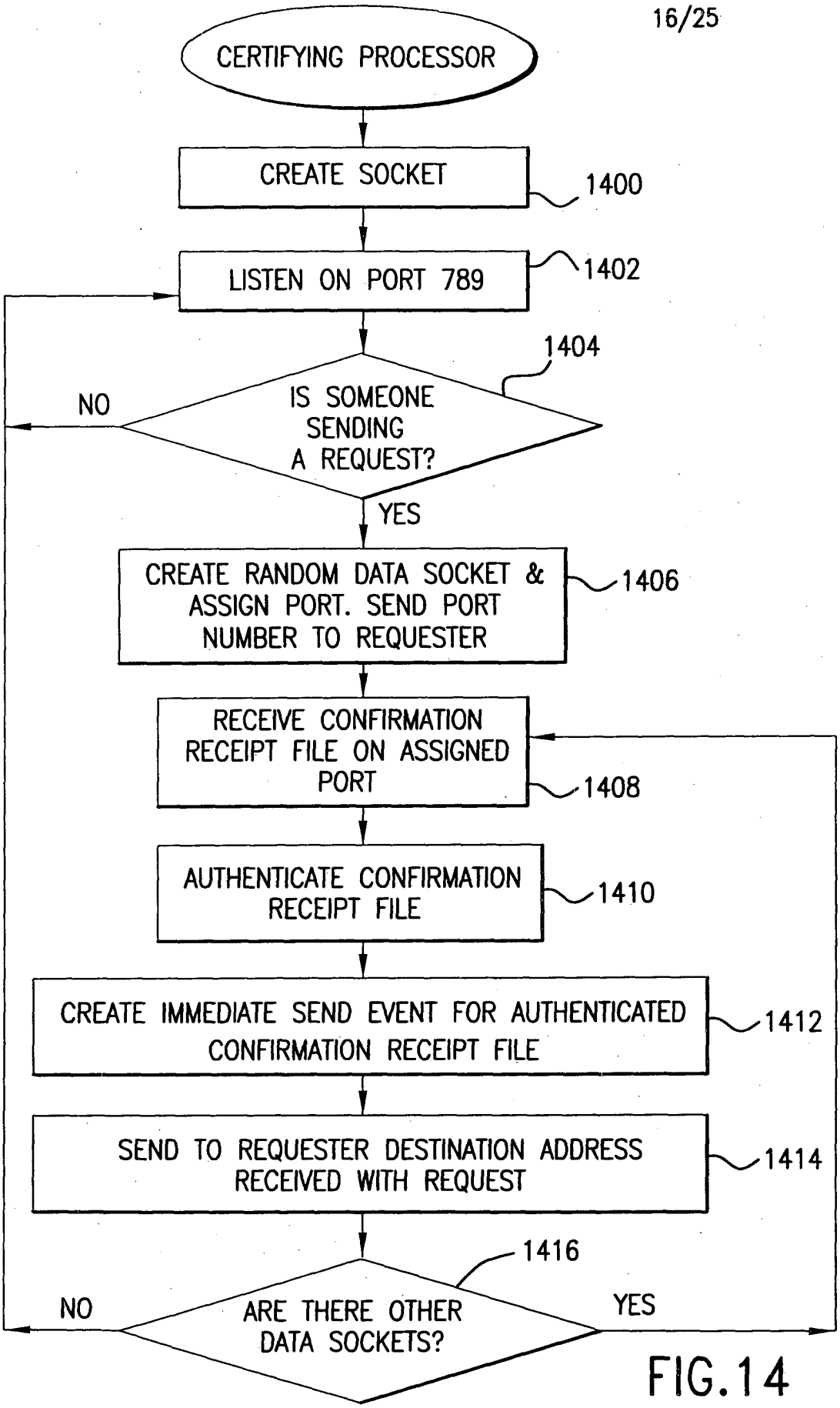
CERTIFYING PROCESSOR
CREATE SOCKET
1400
LISTEN ON PORT 789
1402
1404
IS SOMEONE SENDING A REQUEST?
NO
YES
CREATE RANDOM DATA SOCKET & ASSIGN PORT. SEND PORT NUMBER TO REQUESTER
1406
RECEIVE CONFIRMATION RECEIPT FILE ON ASSIGNED PORT
1408
AUTHENTICATE CONFIRMATION RECEIPT FILE
1410
CREATE IMMEDIATE SEND EVENT FOR AUTHENTICATED CONFIRMATION RECEIPT FILE
1412
SEND TO REQUESTER DESTINATION ADDRESS RECEIVED WITH REQUEST
1414
1416
ARE THERE OTHER DATA SOCKETS?
NO
YES

FIG.14

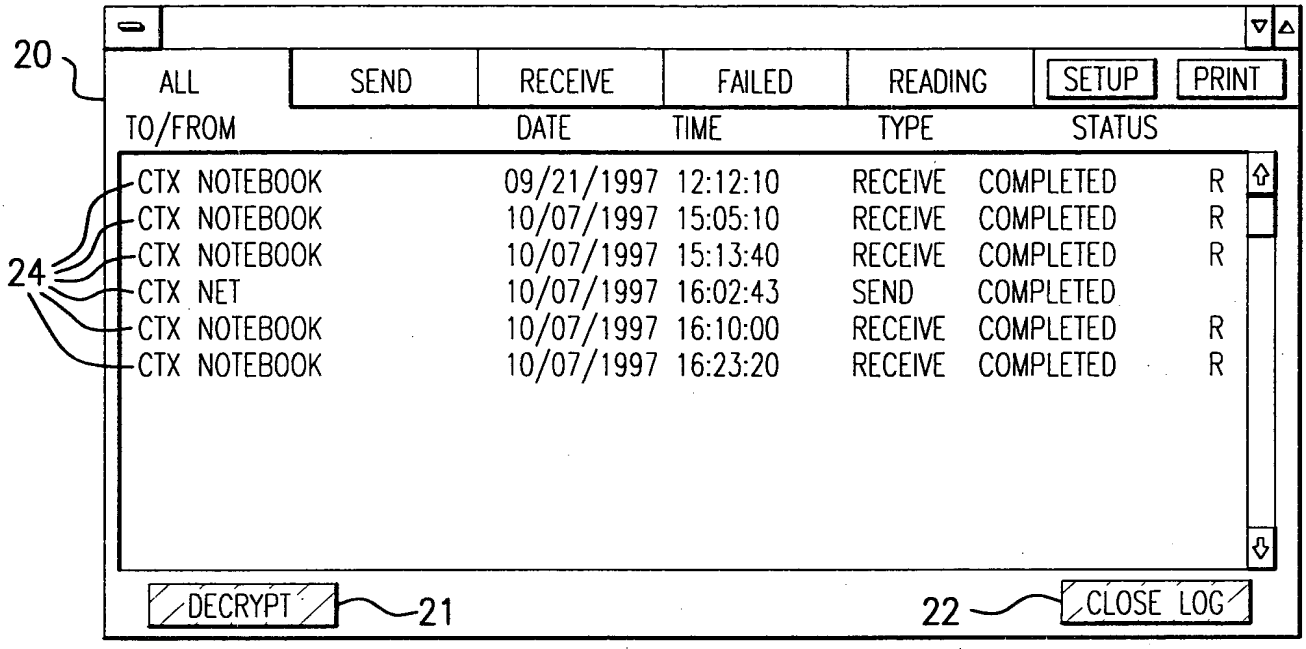
20
ALL
SEND
RECEIVE
FAILED
READING
SETUP
PRINT
TO/FROM
DATE
TIME
TYPE
STATUS
CTX NOTEBOOK 09/21/1997 12:12:10 RECEIVE COMPLETED R
CTX NOTEBOOK 10/07/1997 15:05:10 RECEIVE COMPLETED R
CTX NOTEBOOK 10/07/1997 15:13:40 RECEIVE COMPLETED R
CTX NET 10/07/1997 16:02:43 SEND COMPLETED
CTX NOTEBOOK 10/07/1997 16:10:00 RECEIVE COMPLETED R
CTX NOTEBOOK 10/07/1997 16:23:20 RECEIVE COMPLETED R
24
DECRYPT
21
22
CLOSE LOG

FIG.15

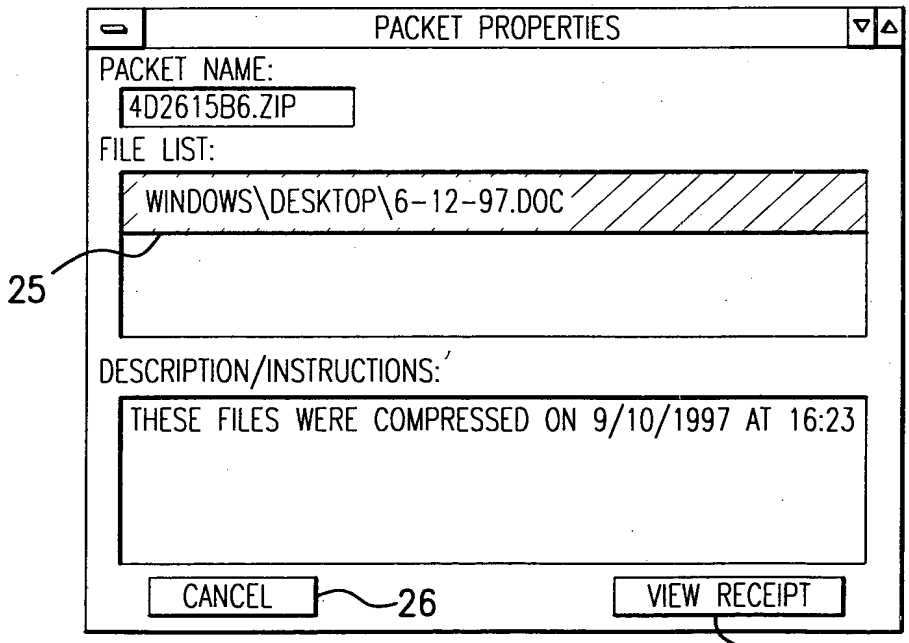
PACKET PROPERTIES
PACKET NAME:
4D2615B6.ZIP
FILE LIST:
WINDOWS\DESKTOP\6-12-97.DOC
25
DESCRIPTION/INSTRUCTIONS:
THESE FILES WERE COMPRESSED ON 9/10/1997 AT 16:23
CANCEL
26
VIEW RECEIPT
27

FIG.16

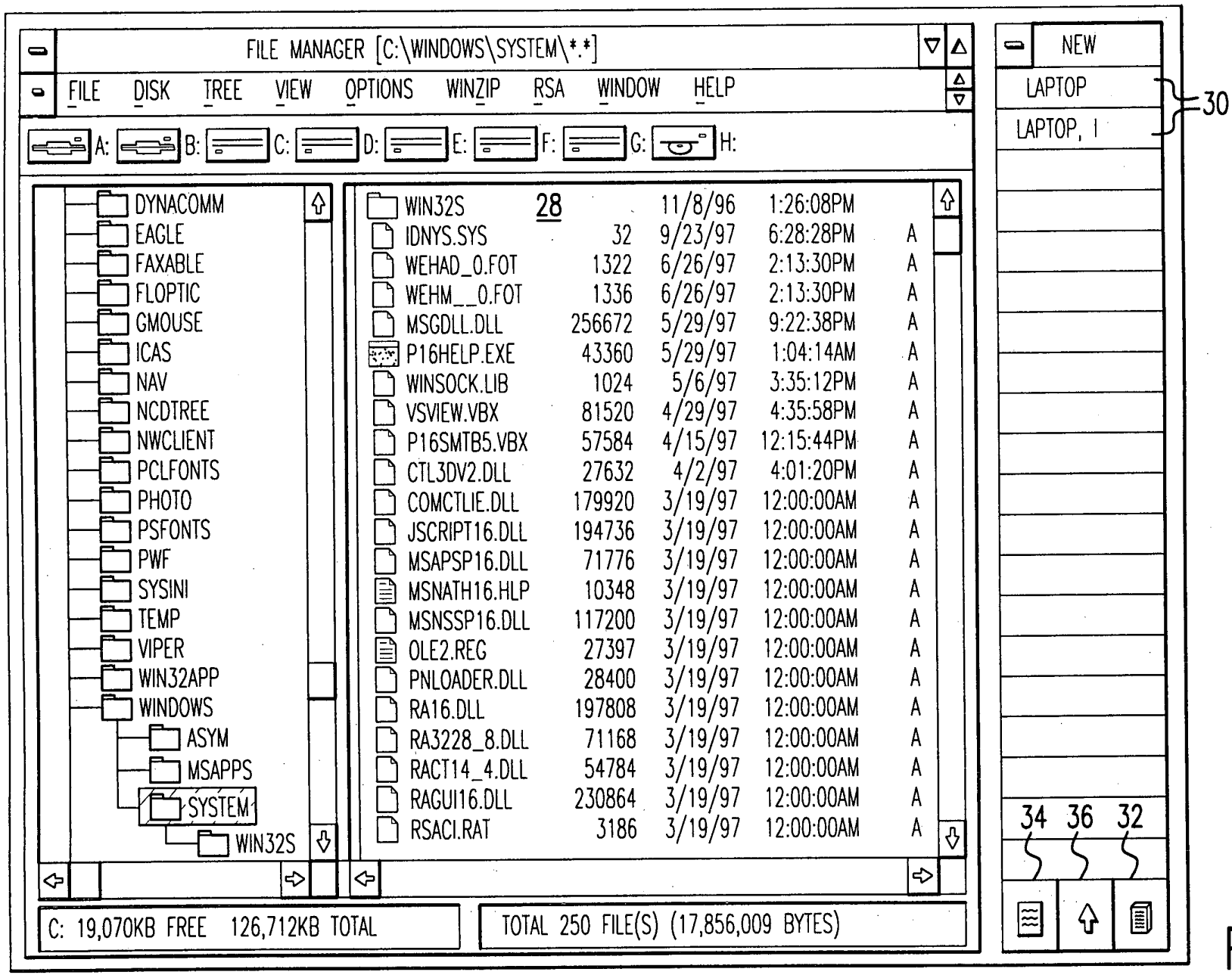
FILE MANAGER [C:\WINDOWS\SYSTEM*.*]
FILE DISK TREE VIEW OPTIONS WINZIP RSA WINDOW HELP
A: B: C: D: E: F: G: H:
DYNACOMM
EAGLE
FAXABLE
FLOPTIC
GMOUSE
ICAS
NAV
NCDTREE
NWCLIENT
PCLFONTS
PHOTO
PSFONTS
PWF
SYSINI
TEMP
VIPER
WIN32APP
WINDOWS
ASYM
MSAPPS
SYSTEM
WIN32S
WIN32S 28 11/8/96 1:26:08PM
IDNYS.SYS 32 9/23/97 6:28:28PM A
WEHAD_0.FOT 1322 6/26/97 2:13:30PM A
WEHM__0.FOT 1336 6/26/97 2:13:30PM A
MSGDLL.DLL 256672 5/29/97 9:22:38PM A
P16HELP.EXE 43360 5/29/97 1:04:14AM A
WINSOCK.LIB 1024 5/6/97 3:35:12PM A
VSVIEW.VBX 81520 4/29/97 4:35:58PM A
P16SMTB5.VBX 57584 4/15/97 12:15:44PM A
CTL3DV2.DLL 27632 4/2/97 4:01:20PM A
COMCTLIE.DLL 179920 3/19/97 12:00:00AM A
JSCRIPT16.DLL 194736 3/19/97 12:00:00AM A
MSAPSP16.DLL 71776 3/19/97 12:00:00AM A
MSNATH16.HLP 10348 3/19/97 12:00:00AM A
MSNSSP16.DLL 117200 3/19/97 12:00:00AM A
OLE2.REG 27397 3/19/97 12:00:00AM A
PNLOADER.DLL 28400 3/19/97 12:00:00AM A
RA16.DLL 197808 3/19/97 12:00:00AM A
RA3228_8.DLL 71168 3/19/97 12:00:00AM A
RACT14_4.DLL 54784 3/19/97 12:00:00AM A
RAGUI16.DLL 230864 3/19/97 12:00:00AM A
RSACI.RAT 3186 3/19/97 12:00:00AM A
C: 19,070KB FREE 126,712KB TOTAL
TOTAL 250 FILE(S) (17,856,009 BYTES)
NEW
LAPTOP
LAPTOP, 1
30
34 36 32

FIG.17

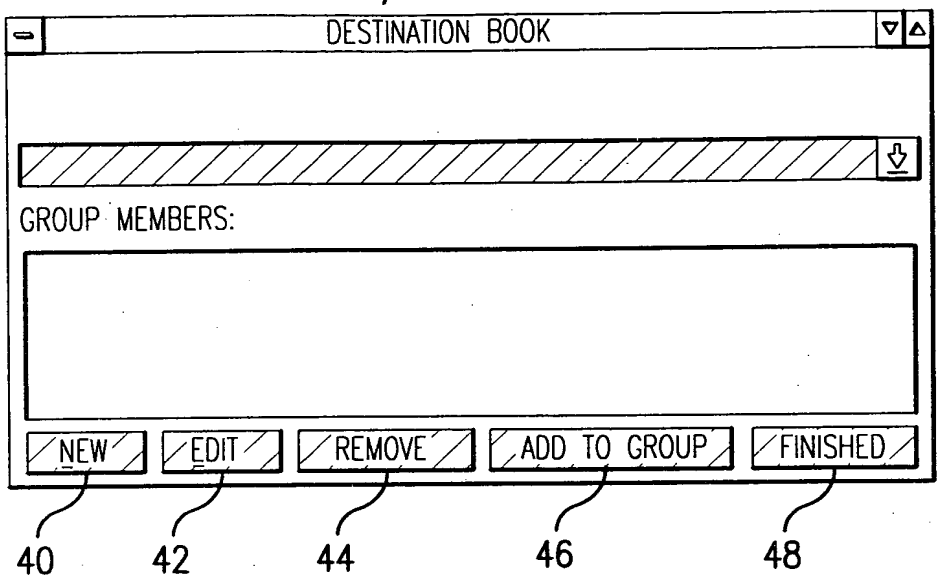
DESTINATION BOOK
GROUP MEMBERS:
NEW
EDIT
REMOVE
ADD TO GROUP
FINISHED
40
42
44
46
48

FIG.18

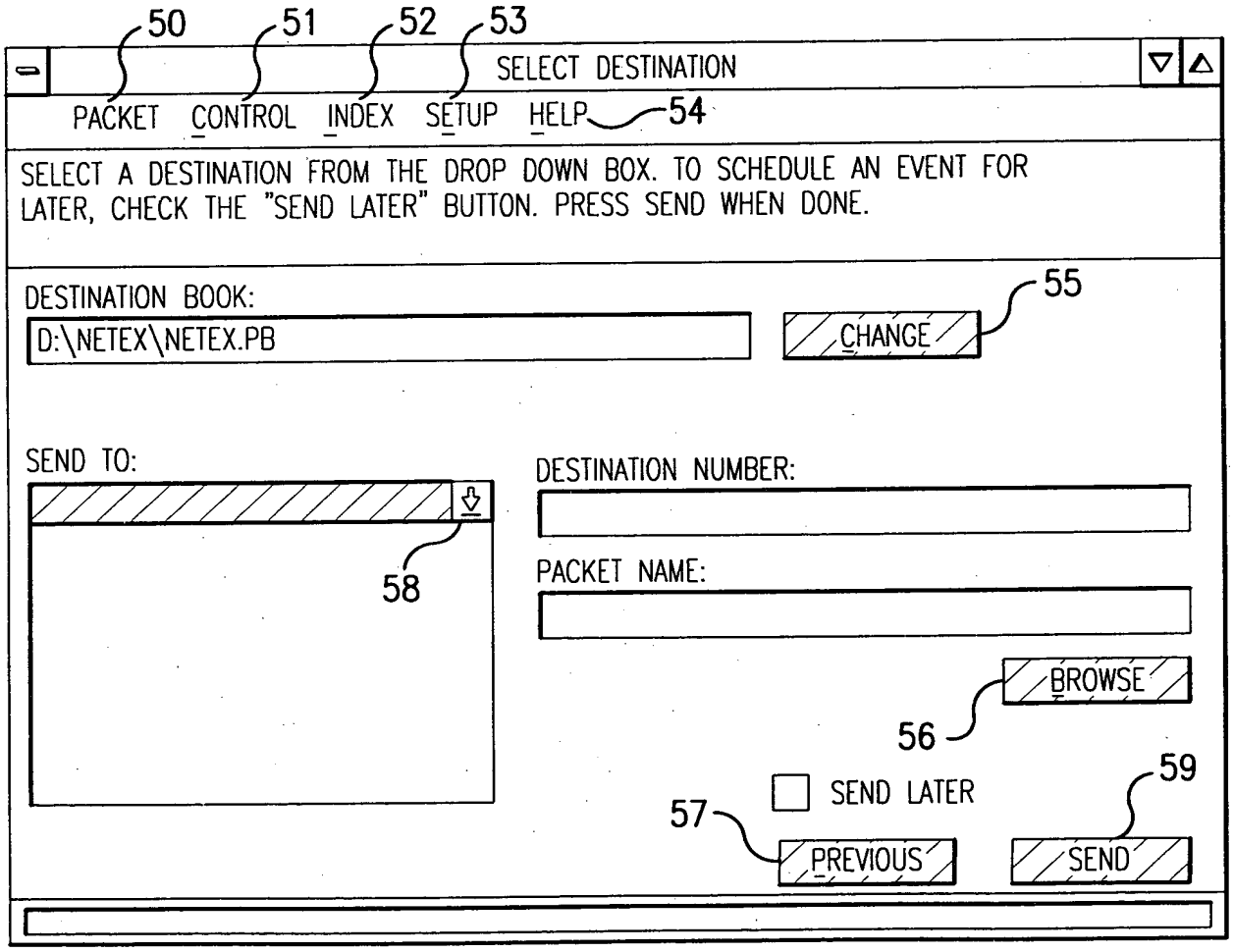
50
51
52
53
SELECT DESTINATION
PACKET
CONTROL
INDEX
SETUP
HELP
54
SELECT A DESTINATION FROM THE DROP DOWN BOX. TO SCHEDULE AN EVENT FOR LATER, CHECK THE "SEND LATER" BUTTON. PRESS SEND WHEN DONE.
DESTINATION BOOK:
D:\NETEX\NETEX.PB
CHANGE
55
SEND TO:
58
DESTINATION NUMBER:
PACKET NAME:
BROWSE
56
SEND LATER
59
57
PREVIOUS
SEND

FIG.19

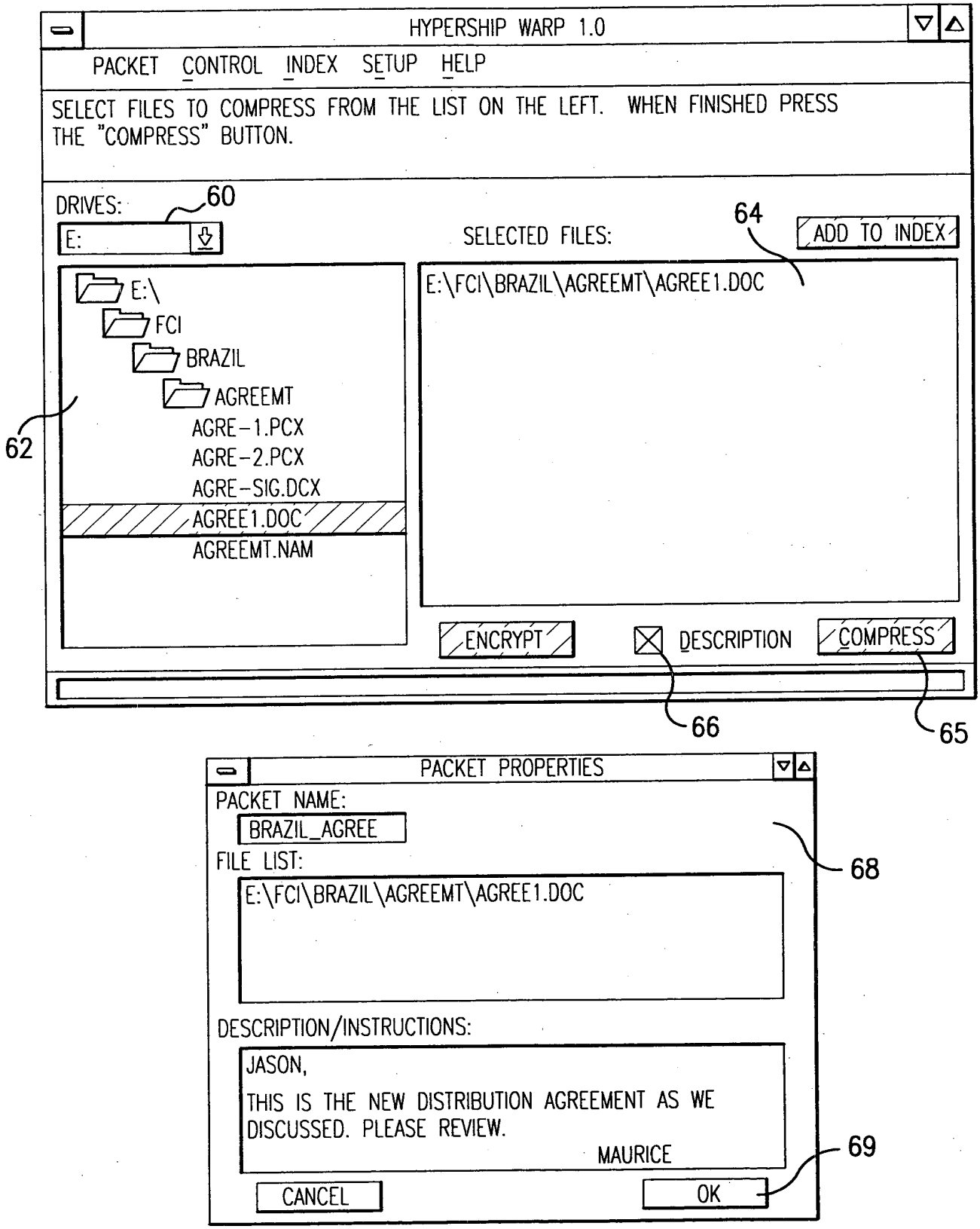
HYPERSHIP WARP 1.0
PACKET CONTROL INDEX SETUP HELP
SELECT FILES TO COMPRESS FROM THE LIST ON THE LEFT. WHEN FINISHED PRESS THE "COMPRESS" BUTTON.
DRIVES:
60
E:
SELECTED FILES:
64
ADD TO INDEX
E:\FCI\BRAZIL\AGREEMT\AGREE1.DOC
E:\
FCI
BRAZIL
AGREEMT
AGRE-1.PCX
AGRE-2.PCX
AGRE-SIG.DCX
AGREE1.DOC
AGREEMT.NAM
62
ENCRYPT
DESCRIPTION
COMPRESS
66
65
PACKET PROPERTIES
PACKET NAME:
BRAZIL_AGREE
68
FILE LIST:
E:\FCI\BRAZIL\AGREEMT\AGREE1.DOC
DESCRIPTION/INSTRUCTIONS:
JASON,
THIS IS THE NEW DISTRIBUTION AGREEMENT AS WE DISCUSSED. PLEASE REVIEW.
MAURICE
69
CANCEL
OK

FIG. 20

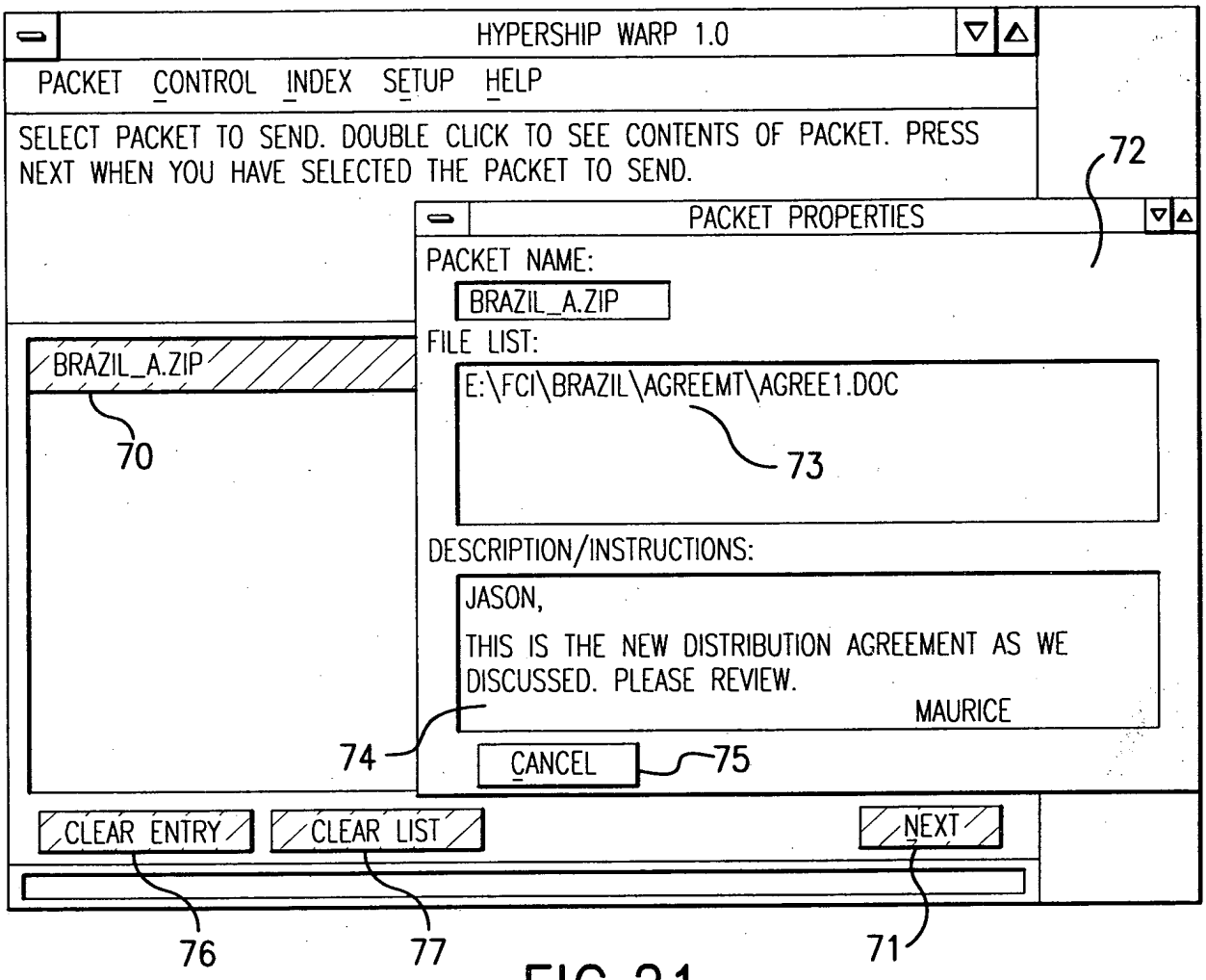
HYPERSHIP WARP 1.0
PACKET CONTROL INDEX SETUP HELP
SELECT PACKET TO SEND. DOUBLE CLICK TO SEE CONTENTS OF PACKET. PRESS NEXT WHEN YOU HAVE SELECTED THE PACKET TO SEND.
72
PACKET PROPERTIES
PACKET NAME:
BRAZIL_A.ZIP
FILE LIST:
E:\FCI\BRAZIL\AGREEMT\AGREE1.DOC
73
DESCRIPTION/INSTRUCTIONS:
JASON,
THIS IS THE NEW DISTRIBUTION AGREEMENT AS WE DISCUSSED. PLEASE REVIEW.
MAURICE
BRAZIL_A.ZIP
70
74
CANCEL
75
CLEAR ENTRY
CLEAR LIST
NEXT
76
77
71

FIG.21

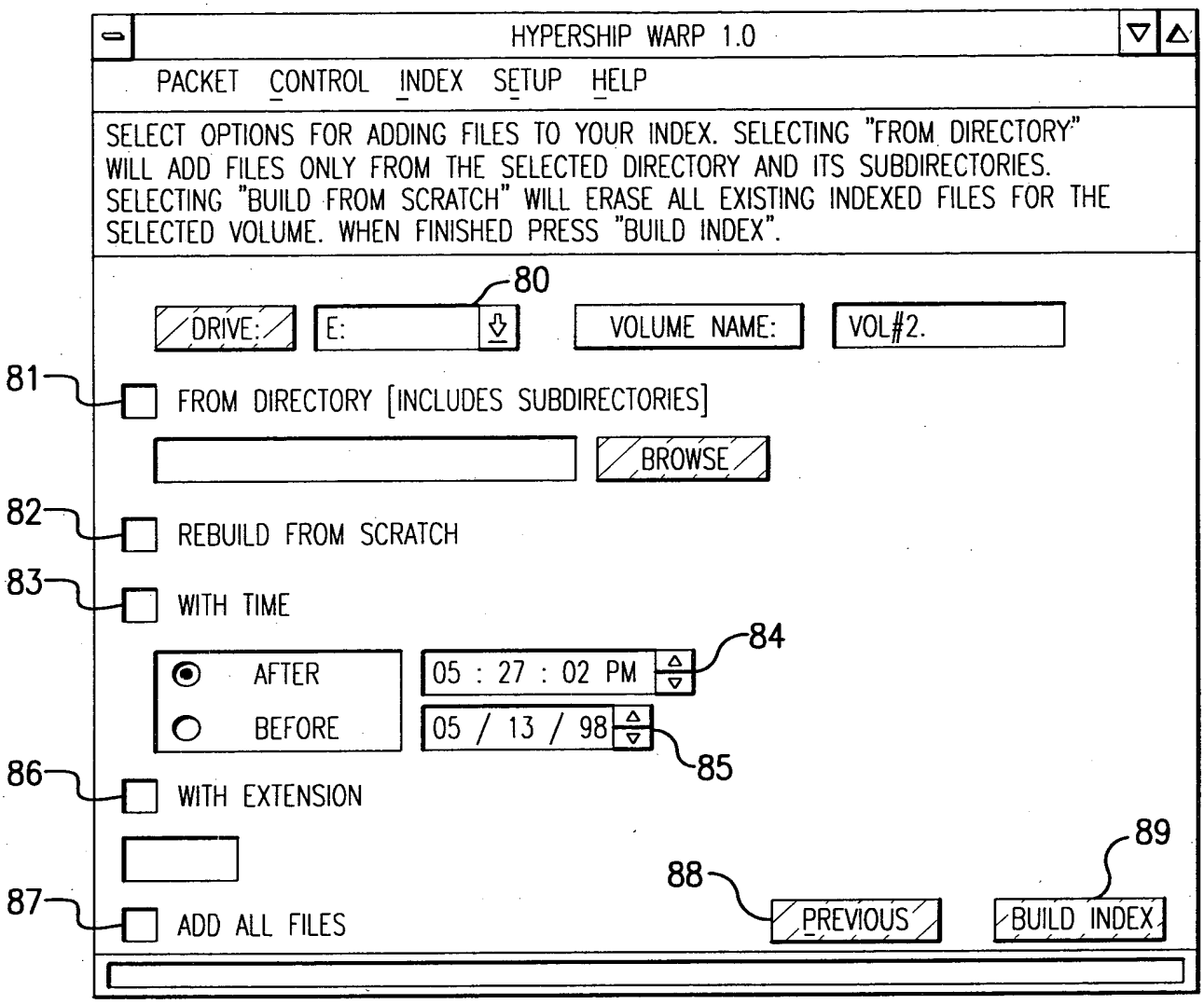
HYPERSHIP WARP 1.0
PACKET CONTROL INDEX SETUP HELP
SELECT OPTIONS FOR ADDING FILES TO YOUR INDEX. SELECTING "FROM DIRECTORY" WILL ADD FILES ONLY FROM THE SELECTED DIRECTORY AND ITS SUBDIRECTORIES. SELECTING "BUILD FROM SCRATCH" WILL ERASE ALL EXISTING INDEXED FILES FOR THE SELECTED VOLUME. WHEN FINISHED PRESS "BUILD INDEX".
80
DRIVE:
E:
VOLUME NAME:
VOL#2.
81
FROM DIRECTORY [INCLUDES SUBDIRECTORIES]
BROWSE
82
REBUILD FROM SCRATCH
83
WITH TIME
AFTER
BEFORE
05 : 27 : 02 PM
84
05 / 13 / 98
85
86
WITH EXTENSION
87
ADD ALL FILES
88
PREVIOUS
89
BUILD INDEX

FIG.22

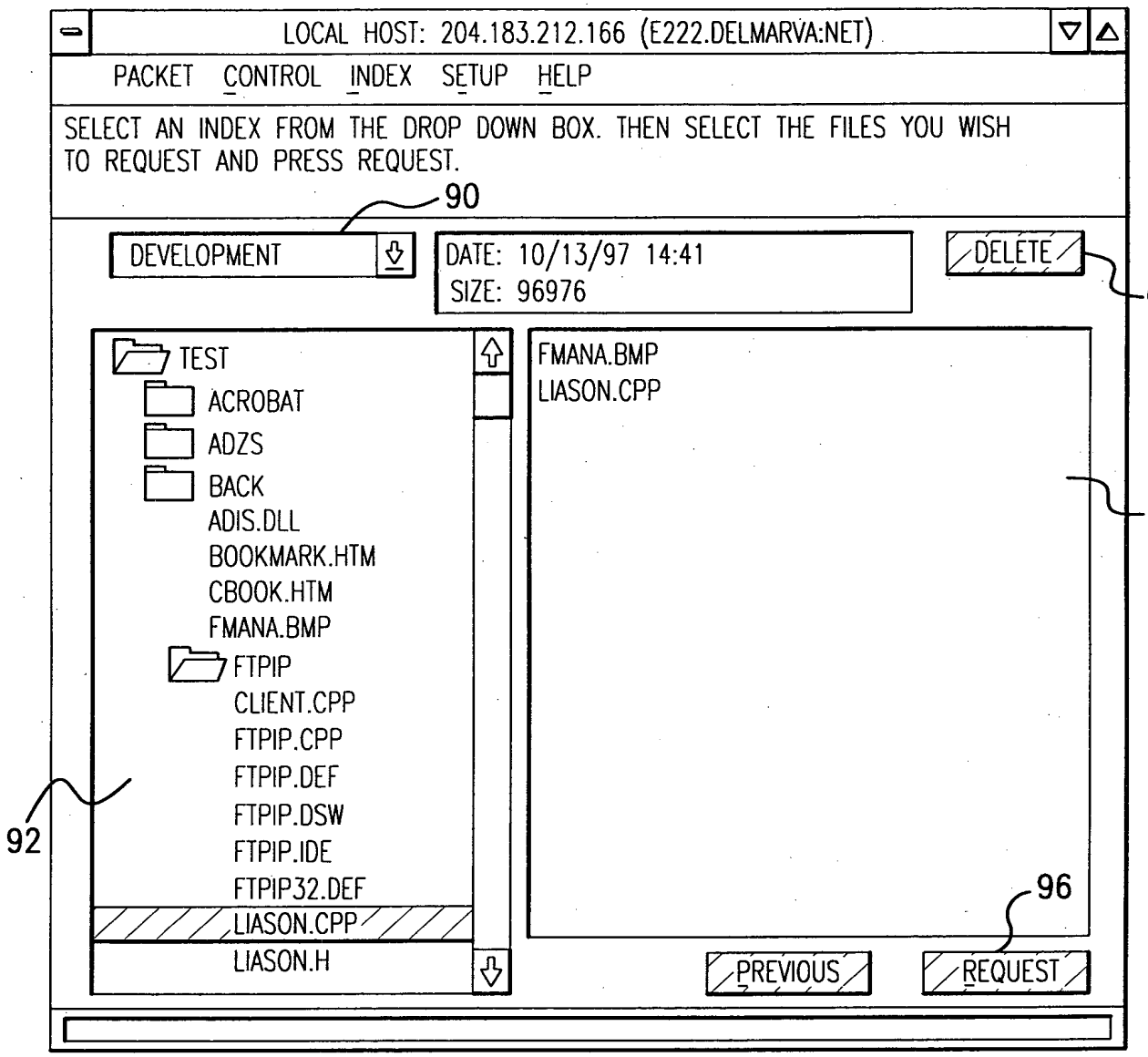
LOCAL HOST: 204.183.212.166 (E222.DELMARVA:NET)
PACKET CONTROL INDEX SETUP HELP
SELECT AN INDEX FROM THE DROP DOWN BOX. THEN SELECT THE FILES YOU WISH TO REQUEST AND PRESS REQUEST.
90
DEVELOPMENT
DATE: 10/13/97 14:41
SIZE: 96976
DELETE
98
TEST
ACROBAT
ADZS
BACK
ADIS.DLL
BOOKMARK.HTM
CBOOK.HTM
FMANA.BMP
FTPIP
CLIENT.CPP
FTPIP.CPP
FTPIP.DEF
FTPIP.DSW
FTPIP.IDE
FTPIP32.DEF
LIASON.CPP
LIASON.H
92
FMANA.BMP
LIASON.CPP
94
96
PREVIOUS
REQUEST

FIG.23

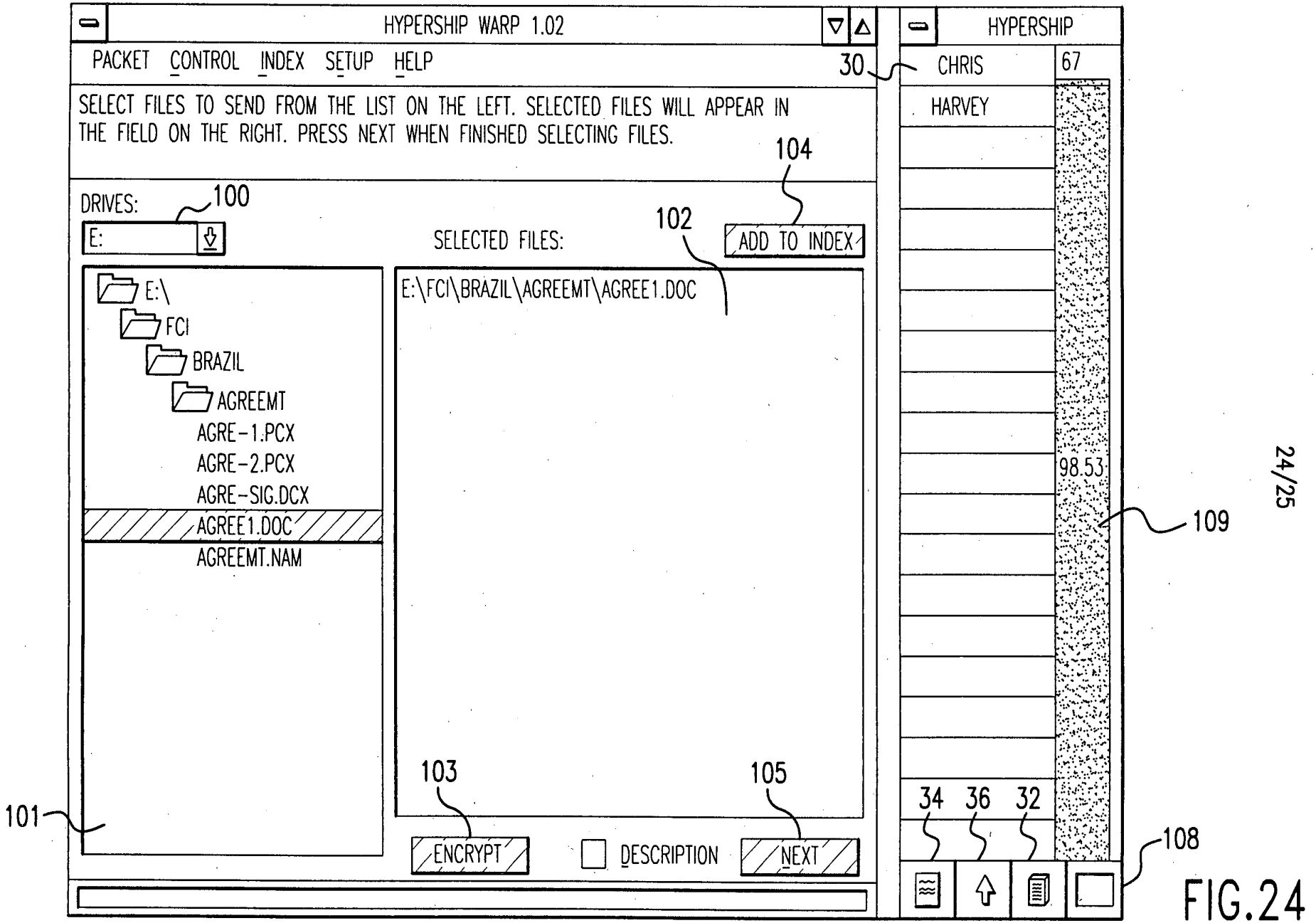
HYPERSHIP WARP 1.02
PACKET CONTROL INDEX SETUP HELP
30
SELECT FILES TO SEND FROM THE LIST ON THE LEFT. SELECTED FILES WILL APPEAR IN THE FIELD ON THE RIGHT. PRESS NEXT WHEN FINISHED SELECTING FILES.
104
DRIVES:
100
E:
SELECTED FILES:
102
ADD TO INDEX
E:\
FCI
BRAZIL
AGREEMT
AGRE-1.PCX
AGRE-2.PCX
AGRE-SIG.DCX
AGREE1.DOC
AGREEMT.NAM
E:\FCI\BRAZIL\AGREEMT\AGREE1.DOC
101
103
105
ENCRYPT
DESCRIPTION
NEXT
HYPERSHIP
CHRIS
67
HARVEY
98.53
109
34
36
32
108

FIG.24

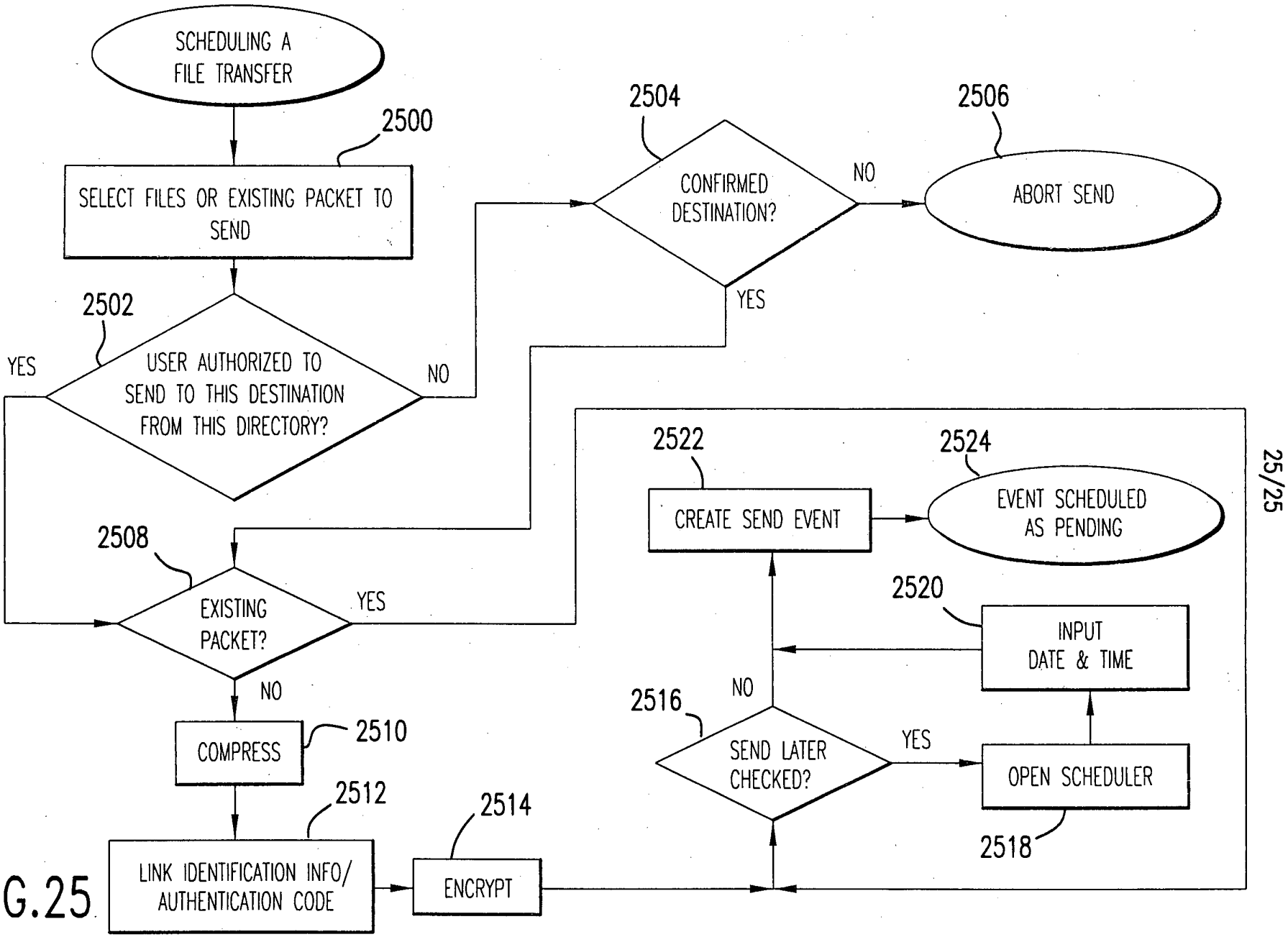
SCHEDULING A FILE TRANSFER
2500
SELECT FILES OR EXISTING PACKET TO SEND
2502
USER AUTHORIZED TO SEND TO THIS DESTINATION FROM THIS DIRECTORY?
YES
NO
2504
CONFIRMED DESTINATION?
NO
2506
ABORT SEND
YES
2508
EXISTING PACKET?
YES
NO
COMPRESS
2510
2512
LINK IDENTIFICATION INFO/ AUTHENTICATION CODE
2514
ENCRYPT
2516
SEND LATER CHECKED?
NO
YES
2518
OPEN SCHEDULER
2520
INPUT DATE & TIME
2522
CREATE SEND EVENT
2524
EVENT SCHEDULED AS PENDING
25/25

FIG.25